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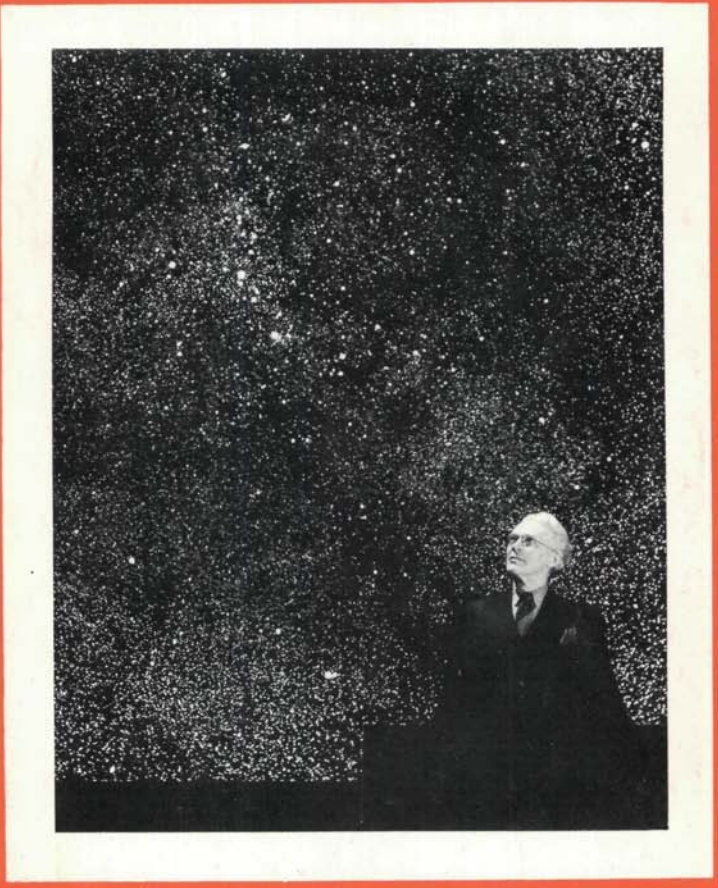

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Canadian Public Policy

Analyse de Politiques

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From its first appearance in 1975, *Canadian Public Policy – Analyse de Politiques* has helped fill the need for a multi-disciplinary research journal covering current issues of interest to business, government and the scholarly community. There has been a large gap between day-to-day journalistic commentary on policy and the primarily theoretical and technical discussion to be found in academic journals. At the same time, there has been a rapid growth of policy planning and evaluation activities within government whose significance is generally unknown. One result has been a dearth of sophisticated public awareness of governmental activity and a failure to provide effective criticism and alternatives. It has also meant a lack of dialogue between policy-makers and the multiple groups and individuals so directly affected by their decisions. *Canadian Public Policy – Analyse de Politiques* can be an instrument for broadening that process – providing governments with new perspectives and alternatives, and providing groups with a basis for making more informed contributions.

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IN MEMORIAM

MARIO CAPPIERI
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del'
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The Members of the Editorial Board of The Mankind Quarterly deeply regret to announce the passing of their colleague, Professor Mario Cappieri, who served actively for several years as an Associate Editor of this journal, and through his efforts contributed greatly to its success.

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VOL. XIX, No. 4 JUNE 1979

CONTENTS

MEDICAL ANTHROPOLOGY: AN OVERVIEW
By *K. A. Hasan* 277

ETHICS AND THE SOCIAL SCIENCES:
THE "BEYONDIST" SOLUTION
By *Raymond B. Cattell* 298

THE CULT OF BRIGID: A STUDY IN PAGAN-
CHRISTIAN SYNCRETISM IN IRELAND
By *Donal O Cathasaigh* 311

THE ETRUSCANS
By *Mario Cappieri* 329

FAMILY AND SOCIAL STRUCTURE
IN EARLY ROME
By *John W. Richards* 349

BOOK REVIEWS 363

INDEX TO VOLUME XIX 368

Cover Picture: Scientist Against a Starry Sky
(See: *Ethics and the Social Sciences: The "Beyondist" Solution*)

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MEDICAL ANTHROPOLOGY: AN OVERVIEW

K. A. HASAN

Anthropology is defined as the science of humanity. The term is a modern compounding of two ancient Greek words (*anthropos*= human being; *logy*= study of). There are several other disciplines that deal with one or the other aspect of the study of human beings. History, for example, deals with the study of sequence of related events, particularly events that are involved in the long-term development of a particular phenomenon. Traditionally, however, history is interested in the study of sequence events that are unique to a particular society, country, geographical area, or ethnic group and the role played by individuals or groups as well as natural circumstances in those sequence of events. Economics, in the same way, deals with the systematic study of various factors involved in the ways in which humans produce, distribute, and consume goods and services. Human anatomy, as it is taught in medical schools, is the study of the structure of the human body. Other disciplines that deal with the study of some aspect of the human species or human phenomena are political science, sociology, psychology, physiology, and human genetics. Why, then, do we have *the* science of human beings? The answer to this question lies in the fact that human beings are both biological creatures, as well as culture bearing creatures (or creator of culture?) and that there is an intimate relationship between human biology and culture. No other discipline but anthropology focuses on the interrelationships between the biological and cultural dimensions of human life.

The fact that humans have adapted themselves to the extent that they may live almost anywhere on the surface of the earth has also reflected in the evolution of disparate physical features, behavior, and culture. Anthropologists study this dynamic interaction among human cultures, natural environments, and human biology. Advancements in science, technology, and medicine, for example, have changed the demographic characteristics of many human populations. The average span of life has increased tremendously in many countries. The ratios of different age groups have changed. Such demographic changes affect the disease picture of the entire population. Thus we

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find that the disease picture of developing countries differs significantly from technologically advanced countries. In many developing countries of Asia, Africa, and Latin America, for example, the major health problems may still be environmental sanitation, infant mortality, maternal mortality, communicable diseases, and malnutrition. In technologically advanced countries, infant and maternal mortality rates have dropped considerably and communicable diseases are no longer major health problems. Instead, their major health problems are cardiac ailments, cancer, and the diseases associated with old age. Culture change can profoundly change a population's biological characteristics both in the positive and negative ways. A shift in growing cash crop from food crops can affect nutrition of an agricultural society. A rapid culture change due to industrialization or urbanization can affect adversely the mental health of a community.

What Is Medical Anthropology?

Since the major focus of study in anthropology is on *humans* and the major focus of attention in medicine and health is *also* on humans, an interesting relationship between medicine, health sciences, and anthropology has existed from the very beginnings of the emergence of anthropology as a discipline in the 19th century. Many medical men and women of the 19th as well as 20th century have been vitally interested in anthropological pursuits and have contributed a great deal in expanding the horizons of the science of humanity. Many early physical anthropologists were medical men and women who were attempting to study *macroevolution*, i.e. long range biological changes in the structure and morphology of hominids such as the stages whereby primates, an order of the placental mammals, emerged from lower mammalian forms, how they adapated to their environment in diverse ways, emerging eventually as winners in the 'struggle for existence.' Early physical anthropologists showed keen interest in the study of paleoanatomy and paleopathology of fossil hominids. The findings of a skull cap and some long bones in 1856 belonging to *Homo neanderthalensis* and of *Pithecanthropus erectus* in 1891 by a Dutch physician, Eugene Dubois attracted the interest of many medical people and anatomists of that time. The most remarkable aspects of these findings were the diagnosis of a

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healed fracture in the former and an exostosis of undoubtedly pathological nature in the latter (Castiglioni, 1947). Other prominent medical personalities who were anthropologically oriented were Virchow (the founder of cellular pathology), Huxley, Haeckel, John Beddoe, Sir William Gull, C. E. Brown-Sequard, Pierre Paul Broca, L.A. Bertillon, Cesare Lombroso (Galdston, 1959). In fact, all of them were prominent anthropologists of the 19th century. Some prominent medical personalities of our times who are also prominent anthropologists are Erwin H. Ackerknecht, Alexander H. Leighton, Paul Fejos, A. E. Mourant, and Iago Galdston, just to mention a few names.

Early biologists were interested in the classification of *Homo sapiens* into races. Physical anthropologists gained much from the mass of information about non-Europeans and others gathered and described in the 17th century. Later, the Swedish biologist Linnaeus (1707-1778) provided basic rules for classifying all living forms. The most important of the early classifications of *Homo sapiens* comes from the late 18th century and early 19th century, when Johann Friedrich Blumenbach (1752-1840) classified the living human groups into five groups: negroid (Ethiopian) or black, mongoloid or yellow, caucasoid or white, American Indian or red, and Malayan or brown (Kelso, 1974).

Physical anthropologists debated and differed on the number of races up to and until nearly three decades ago. Human classification based on morphological characteristics alone encounters many difficulties. While sub-species in the non-human animal world can in most cases be classified satisfactorily into relative discrete and clearly identifiable genetic "types," whose members customarily interbreed only with each other, human populations have, probably in both prehistoric as well as historic times, frequently tended to interbreed, so that the human reality is best conceived of in terms of micro-races linked to each other by a varying complexity of inter- and intra-racial clines. In consequence, while substantial and readily identifiable physical variations do distinguish human populations from each other, many physical characteristics such as stature or shape of the head are found to be overlapping between individual members of two descriptively different populations or micro-races. However, specific and clearly identifiable genetic traits are available. Landtseiner had already discovered

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the ABO blood group system in 1900. The Rh blood system was discovered in 1939 and many advancements in immunology, serology, and human genetics had already taken place. Physical anthropologists, therefore, started paying greater attention to the study of human characteristics that are demonstrably inherited. Such a study comes under the domain of *microevolution*, the ongoing evolution of modern human populations. Thus by late '30's or early '40's of our century, they started paying attention to the distribution of such polymorphic characters (a trait controlled by two or more common alleles as blood groups in human populations). Today, they also pay attention to numerous plasma proteins and a wide range of red cell enzymes and other traits that show genetic variability in *Homo sapiens*. Thus they talk more about human variation in terms of gene frequencies, natural selection, and genetic adaptation rather than about osteometry, bone measurements and morphological features. Thus, evolution is viewed as changes in allele frequencies of populations through time. Again, they find that both cultural and biological factors influence the biological diversity of human populations. The implications of differences in diet, disease history, demography including migrations, and culturally governed mating structures are being increasingly mentioned as factors affecting human variation.

The natural outcome of the interest in the study of human evolution, comparative anatomy, immunology, serology, and human genetics was to devise methods by which (a) human body remains could be identified as distinct from those of other animals, especially higher primates; (b) different physically identifiable ethnic groups could be established on the basis of distinguishing characteristics of bones (osteology, osteometry, and craniometry), hair, blood groups, and so forth; (c) sex differences could be identified from bone and other material; and (d) age of the living human individual could be ascertained, and age at death could be estimated from the body remains. Forensic medicine, the science dealing with medico-legal problems, makes use of these techniques in human identification. A number of other medical uses of physical anthropology have been recognized. For example, standardized anthropometric data are used today as basic information for many comparative studies on health and biology of human popu-

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lations such as the assessment of nutritional status through studies of growth and development of infants and children. Wishik and Van Der Vynckt (1976) have described methodology for doing nutrition surveys among deprived population groups of highly homogeneous socio-economic status. The anthropometric data is used to identify families who fall in the upper 25 percent in height and weight measurement. Such families are labeled as being "positive deviants" from the undernourishment that prevails in the population. They are then studied anthropologically to uncover any practices related to food sources, storage, preparation, habits of consumption, and content as well as culturally regulated taboos or food values.

Anthropology and the History of Medicine

Many schools of medicine have departments of history of medicine. One common subspecialty of both history of medicine and physical anthropology is paleopathology. This term was first defined by Ruffer (Quoted by Goldstein, 1963) in 1921 as "the science of diseases which can be demonstrated in human and animal remains of ancient times." This subspecialty calls for close cooperation of physical anthropologists, archeologists, pathologists, anatomists, and medical historians. Virchow, a noted pathologist and physical anthropologist of the 19th century paid considerable attention to pathology of fossil bones. In 1923, the noted anatomist and physical anthropologist, Roy L. Moodie, published the first comprehensive book on the subject, *Paleopathology: An Introduction to the Ancient Evidence of Disease*. The same year Moodie published a short but more popular book, *The Antiquity of Disease*.

An important contribution of prehistoric archeology in the study of history of medicine is the study of early works of art of prehistoric peoples. Archeologists have been able to show that the earliest origins of medical thought and its developmental trends go back to prehistoric periods. We find figures in the art of upper paleolithic people as well as later periods suggestive of morbid conditions. We also find evidence of the first instruments used in surgery. Numerous arrowheads have been found embedded in vertebrae and extremities of Neolithic period and pre-Columbian America.

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Anthropologists have also studied mummies for diagnosing pathological processes during ancient times. Other anthropological studies have shown that disease picture at different stages of cultural and biological evolution of hominids differed considerably. Hudson in his 1965 article, "Treponematosis and Man's Social Evolution," attempted tracing the history of treponematosis, an infectious disease of humans caused by a microscopic parasite.

Anthropology and Forensic Medicine

The refinement and differentiation of anthropometric, ostometric, craniometric procedures as well as dental identification methods have proved to be of great value in legal medicine. These applications of physical anthropology lie in the areas of identification of sex from skeletal material, determination of age at death, and identification of ethnicity. The study of wear and tear of teeth is often indicative of dietary habits as well as age at death of the individual. Other applications of physical anthropology in legal medicine include use of blood groups in disputed paternity, and in the study of blood stains or saliva to trace criminals. Dermatoglyphics, the study of finder, palm, and sole print patterns, is also used for these purposes.

Family Medicine

The rise of modern medicine resulted in the development of so many medical specialties. More than half a century ago there used to be "family doctors" who took care of the general medical and health needs of all the family members. Over the past fifty years, general practice has declined and practice limited to particular organs, specific illnesses, or special procedures has increased considerably. More than 70 percent of the physicians in the United States today are engaged in giving patient care in some specialty compared to 11 percent in 1923 (Friedson, In: Freeman, Levine, and Reeder, 1972). However, it is being increasingly recognized that specialist care leads to fragmentation of individual patients. Furthermore, members of the same family go to different physicians — children go to a pediatrician, and the adults to an internist. Adult females may go to an obstetrician and a gynaecologist. In recent years, it has increasingly become clear that while many large cities have specialists of many kinds, smaller towns

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and rural areas cannot get basic medical care. Thus, in 1969, the American Medical Association Council on Medical Education approved the new specialty of Family Practice. The approach of Family Medicine recognizes the role of promotive medicine in which the center of interest is still the individual but as a member of a family and a social group. This calls for the recognition of the fact that the individual cannot be considered apart from his or her family or from the various and many forces in the physical and social environment that may influence the family.

One major objective of modern family practice is to be holistic, thorough, and efficient. Since the family practitioner's *patient* is the family, programs in Residency Training in Family Practice must aim at directing the attention of medical students for understanding humans in disease, rather than disease in humans. This calls for training and orientation in multicausal aspects of health and disease. This means an awareness in sociocultural influences and their impact on individual, family, and community health is also necessary in addition to various clinical specialties. Attention should be drawn to the role played by culturally determined habits and beliefs in health and disease and the role of social institutions such as exogamy, endagomy, and polygamy in the control, persistence or elimination of disease. For example, an explanation of social and cultural factors in the high incidence of venereal disease in some societies (such as polyandrous societies) or certain segments of our own society can be dealt with. Other examples would be the relationship of culturally regulated customs, practices, and taboos in food habits and nutrition. These and many other aspects of social and cultural aspects of health and illness call for inclusion of a course in cultural-social anthropology to convey anthropological concepts in a palatble manner. This will help family practitioners gain respect for cultural difference and understand culture as a system.

Community Medicine, Social and Preventive Medicine and Public Health

The concept of multiple causes of diseases is widely accepted today. This means that disease is not only a biological phenomenon but it is also a social and cultural phenomenon. In the medical profession there has been considerable confusion

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between the terms "preventive medicine," "community medicine," "social medicine," and "public health." The reasons are historical as well as regional. Public health in the United States arose out of the urgency to control epidemic and communicable diseases and, in the early stages of its development was mainly concerned with the sanitation of the environment (Leavell and Clark, 1965: 7-13). Social medicine developed in Western Europe where the role of environment – physical, biological, and socio-cultural – in health and disease was recognized. With the advancements in medicine and health, it is widely recognized today that the lines of demarcation between curative medicine and community measures to combat diseases has to be less sharp. Therefore, many schools of medicine in Europe and elsewhere have established departments of social and preventive medicine. In the United States and many other countries, similar departments are known as departments of community medicine. These departments emphasize the concepts of prevention, treatment, and rehabilitation in their teaching curricula and research programs.

Public health today is recognized to be a profession requiring teamwork. The public health team includes medical officers, environmental scientists and ecologists, epidemiologists, statisticians, public health nurses, nutritionists, maternal and child health specialists, social workers, administrators, health educators, and social scientists. Since it is a widely recognized fact today that prevention of disease can not be achieved merely by the laboratory findings of the bio-chemical causes of disease but also on our ability to identify genetic problems and advise prospective parents regarding the possibility of transmitting genetic handicaps, as well as to suggest ways of modifying cultural behavior to prevent the spread of communicable diseases.

Psychiatry and Psychological Medicine

Social-cultural anthropologists are commonly utilized in teaching as well as research programs of departments of psychiatry or psychological medicine. Private organizations and governmental agencies connected with mental health also utilize the services of cultural-social anthropologists. The relationships of psychiatry, psychological medicine, and social-cultural anthropology have been very close. Numerous anthropological studies of non-literate cultures have shown the importance of

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cultural factors in psychosomatic diseases as well as the personality development of the individual (Montagu, 1957). Ackerknecht (1944) has demonstrated the role of culture in his study of psychological and physical peculiarities of white children abducted and reared by North American Indians, and shown that such children in the process of growing up became Indians mentally and to a certain extent even physically.

Anthropologists have also been interested in the relationship between culture and mental disorders. This relationship has been examined in a number of ways. One approach is to look at behavioral disorders cross-culturally. This approach poses one serious problem. The psychoses of Western psychiatric experience and nosology are not universal and transcultural and are strongly shaped by cultural pressures and conditioning. The examples are *pibloktoq, windigo, latah*, and *amok* (Landy, 1977, p.334). It is, therefore, evident that there is no agreement on the cross-cultural definition of behavioral disorders. Marvin K. Opler's (1959) study of Italian and Irish schizophrenics in New York has demonstrated that the way a person becomes mentally ill is influenced by his or her culture, and mental illness within a sociocultural system is an exaggeration of "normal" behavior within that system. Do all communities need individuals with behavioral problems to be able to demonstrate cultural or moral boundary markers?

Anthropological studies of acculturation have shown that acculturation, when rapid and extensive, has a damaging effect on the mental health of the people (Leighton, 1959). The rapid urbanization due either to industrialization or to other processes in many developing countries and areas provides situations whereby social-cultural anthropologists and psychiatrists could collaborate in the area of mental health. Today, departments of psychiatry in medical schools do employ the services of social-cultural anthropologists in their teaching and research programs and seek collaboration from them in such areas as studies of alcoholism, drug use and abuse, psychosomatic disorders and numerous other aspects of mental health where social and cultural stresses and strains are considered to be important.

The Ecological Approach In Medical Anthropology

Anthropology combines in one discipline the approaches

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of the biological sciences, the social sciences, and the humanities. Thus, the biological and ecological approaches are common to anthropology, medicine, and health and provide valuable grounds for collaboration between medical scientists, health professionals, and anthropologists. Ecology is the study of the interrelations of populations of living organisms. The biology and evolution of organisms is basically seen in the perspective of adaptive mechanisms since Darwin's *On the Origin of Species by Means of Natural Selection* (1859). Today, adaptation is seen as an ongoing consequence of natural selection whereby populations change in response to changes in their particular ecological niches. The term *niche* or *ecological niche* means the specific slot of an environment occupied by a particular population. In the human context, this ecological niche can be divided into three groups:

1- *Physical environment* such as soil, altitude, latitude, temperature, humidity, and so forth,
2- *Biological environment* such as fauna and flora and the size of the population of different organisms in a given area, and
3- *Socio-cultural environment* such as the human group or groups and the conditions in which humans are born, live, work, enjoy themselves, procreate, and die.

The concept of biological adaptation is linked with the development of ecological theory. This theory provided an important shift in emphasis from individual organisms to *populations* of organisms. A population is a group of individuals who regularly interbreed with one another and only occasionally interbreed with individuals who are members of other groups.

Thus members of a given population share the same gene pool. They constitute in effect, a microrace. The *gene pool* of a given population is the sum of all hereditary material in the population. Such persons will tend, to the extent that they share a common genetic heritage, to share a degree of susceptibility or of resistence to specific diseases.

The Concept of Adaptive Strategy

Most human biological adaptations, like those of other animals, have been unconscious or involuntary. This means humans did not make any conscious attempt to evolve themselves. Some attempts of planned biological adaptations such as the eugenics movement or population control are relatively new. In comparison with biological adaptations, some cultural

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adaptations of the past and the present are planned and directed, while many others are unconscious in character. All human groups organize themselves to extract a living from their habitats. These are known as the *adaptive strategies* of the group. Furthermore, all human groups take actions to meet the challenges of the external or internal constraints or exigencies. These actions are also the group's *adaptive strategies*. Whenever a human group's behavior has some consequences for the total or an aspect of the total environment which evidently was not the main issue connected with that pattern of behavior, then the adaptive strategy is *unconscious*. All adaptive strategies could be either functional or dysfunctional or functional in some respects and dysfunctional in others.

A good example of the functional-dysfunctional dichotomy of the adaptive strategies is the Aswan High Dam of Egypt. Completed in 1967, the dam was built to prevent the severe floods of the Nile, to increase irrigation facilities to areas previously not cultivated, to store water and to generate 10 billion kilowatt hours of electricity a year. All these expectations have been partially fulfilled (Sterling, 1971). But the environmental impact of the dam has been disastrous. Before the dam was built annual floods used to make the valley fertile due to deposition of silt, wash away salts, carry nutrients to fish and shell-fish, and replenish land that the currents eroded. Now most of the sediment sinks to the bottom of Lake Nasser. The loss of fertility must be compensated by the increased use of artificial fertilizers. Nitrates of the fertilizers are washed away and end up in people's drinking water. This is a health hazard. Soils are absorbing more salts than crops can tolerate. In addition, the incidence of certain diseases such as *schistosomiasis* has increased due to multiplication of snails in the irrigation channels. Before the High Dam, the channels used to dry periodically hence killing snails. Now the channels do not dry and the snails carrying the larvae of the parasite multiply increasing the infection rate from 6 percent to more than 80 percent.

Culture and Human Biological Adaptations

Adaptations are the responses to many interacting and interrelated forces called *stresses*. Human populations do not live in vacuums. They live in human ecosystems that contain many

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stressing agents of the total environment. These may be physiographic, biological, psychological, and sociocultural in nature. Human ecologists for the sake of convenience speak of single stresses such as disease, nutrition, altitude, temperature, or light. But if we look at each of these stresses rather closely, we will realize that all of these stresses have multiple components within the total environment. The human individual and the human group is constantly trying to achieve an equilibrium in this multifaceted environment. The term "disease" for example, is as difficult to define as the term "life" itself. Often it is described as an abnormal state of being which may be associated with a wide variety of phenomena such as pain, discomfort, disability, and disappointment. In such cases it is as much a sociocultural and psychological phenomenon as it is biological.

Disease as a stress can be broken down into three sets of sources that act cumulatively. These are:

(i) the causative agents such as virus, bacterium, protozoa, parasitic worm, toxic chemical, or metabolic imbalances such as nutritional deficiency, or hypercaloric diet,

(ii) the environmental factors responsible for or favoring the development of the causative agent and consequently the spread and dissemination of disease. The term environment is used in its biological, physical, psychological and sociocultural facets, and

(iii) the host factors, including hereditary potential.

It is interesting to note how the three sets of sources for our conceptual entity, *disease*, interact and interrelate to each other. For clarity, first let us consider the various categories of disease. These are: *infectious* diseases, *chronic* diseases, and *inherited* diseases. In point of fact the susceptibility to infections and chronic diseases is also partially determined by heredity, but for convenience we will regard these classes as separate.

Infectious diseases: These are those diseases that are caused by such organisms as virus, bacteria, or protozoa. Human body responds to the stress of microbes in multiple ways. First, skin provides a barrier to microbial attack. Second, the mucous in the nasal passage traps foreign particles and microbes. In addition to these, natural selection has been operating in specific ecological niches to provide for mechanisms of defense

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called *immunities*. For example, a subclass of antibodies or immunoglobulins (IgA) is produced by cells lining most of our body openings. This helps microbes out (Weiss and Mann, 1978, p. 451).

Many microorganisms can get inside the human body by breaking through these barriers through food, water, or the decline of the body defense mechanism itself. If this happens, another class of antibodies, IgM is produced which aids the white blood corpuscles in destroying these microorganisms. And finally, another antibody called IgG also helps counteract infection. This relates to the production of specific antibodies upon secondary exposure to an antigen. Infectious diseases encountered by a human population, therefore, result in building immunity against those specific infections, both individually and by selective effect upon reproduction.

Cultural factors play an important role in the communication, prevention and control of infectious diseases. Poor sanitary conditions in the past were responsible for poliomyelitis, a disease caused by a virus. The disease can be communicated by coming in contact with human feces not followed by washing the hands. The epidemics of poliomyelitis during the early and middle of 1950s are indeed explained in this perspective of biocultural integration. Children, previously exposed to strains of virus of polio that were not virulent, developed immunity against them; first time exposure produced only minor curable problems. This production of antibodies prevented paralysis and death when more virulent strains invaded the population. In industrial societies, this early exposure of virus was prevented in children due to improved sanitary conditions and hygienic practices. Lacking antibodies in their bodies against polio virus, many young adults became susceptible to virulent strains of poliomyelitis and suffered from disease, disability and death.

The evolution of culture and its major stages from hunting-gathering to agriculture and to industrialism also had ramifications for the spread and control of infectious diseases. Hunting-gathering societies of the prehistoric times and their remnants today (e.g. Bushmen of the Kalahari desert) lived in small groups and their populations distributed over a wide area. They also did not stay in one place for more than a few weeks or months. It is reasonable to expect a lesser incidence

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of contagious diseases in such societies. Polgar in his famous article (Sol Tax, ed., 1964, pp. 200-211) "Evolution and the IIIs of Mankind" suggests that the hunters and gatherers would have been faced with two types of disease – those which were passed on to hominids from their prehominid ancestors, and those (zoonoses) which did not have human hosts but were accidentally transmitted to humans. J. B. S. Haldane has also postulated that the epidemic diseases did not greatly affect human evolution until agriculture came along. In Polgar's first category of diseases fall such parasites as head and body louse (*Pediculus humanus*), pinworms, yaws (Hudson, 1965), and malaria. Livingston (1958) suggests that malaria became endemic as a result of the development of *swidden*, or slash-and-burn agriculture. This kind of practice favored the multiplication of the mosquito, which is a carrier for the parasite of the malaria, *Plasmodium falciparum*.

The second group of diseases which affected hunting-gathering societies were those that associated with humans only secondarily. Polgar includes in this group those infections that affected humans through insect bite, wounds, or from consuming meat of the infected animals. Such diseases would be sleeping sickness, scrub typhus, relapsing fever, tetanus, trichinosis, tularemia, and schistosomiasis.

The domestication of animals and plants during Neolithic times, some ten to twelve thousand years ago in the Near East and several thousand years later in Europe, resulted in the development of sedentary villages. This means larger populations in relatively small areas. This growth in human populations must have created new and different health problems. For one thing, domestication of animals would bring animals near the areas of human habitations. This happens in many agricultural societies even today. Second, new problems of environmental sanitation, previously unknown during hunting-gathering state, would emerge. Third, domesticated animals such as cattle, pigs, sheep, and fowl carry *Salmonella* and *Ascaris*, hence infecting humans. And finally, the products of domesticated animals such as milk, skin, hair, and meat, and the dust raised by animals provide for the transmission of anthrax, Q fever, brucellosis, and tuberculosis (Polgar, 1964, Sol Tax, ed.).

Infectious diseases in urban environments – preindustrial

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and industrial — were present and still pose recurrent threats to human populations. These are especially related to environmental sanitation and supply of food and water to large populations. Transmission of disease by contact became a serious problem. In preindustrial societies, plague bacillus which was originally spread by rodents, could be spread by inhalation. Many other diseases such as measles, mumps, chickenpox, and smallpox were also transmitted by contact (Armelagos and Dewey, 1970). Epidemics created serious threats for human survival in both industrial and agricultural populations. About one quarter of the European population was killed between 1300s to the 1700s due to epidemics of bubonic plague.

During the last two hundred or more years, the increase of exploration and world travel led to the spread of many infectious diseases. Native populations, such as the American Indians, the Australian aborigines, and African tribal peoples who were not previously exposed to such infections had little or no immunity against these diseases. A polio epidemic hit several Eskimo communities as late as 1949 (Weiss and Mann, 1978, p. 454), killing about 14 per cent of the population and leaving forty per cent paralyzed.

Chronic diseases: These are noninfectious diseases and are so named because their effects are long term. Such diseases pose the biggest health problem in the developed nations of the world and also are a problem for the industrialized and westernized segments of the developing countries. Modern medicine has reduced the incidence of infectious diseases to its lowest level in most industrialized countries of the world. This has raised the average life span (longevity) considerably. Improved economic conditions, industrialization, urbanization, population growth (megapolis), pollutions of various kinds along with increased life span have created a complex set of *stresses* and their own set of diseases. Hypercaloric diet, obesity, hypertension, heart disease, and cancer are the main illnesses and causes of death in the United States and many industrialized nations.

The incidence of noninfectious diseases varies in different parts of the world. The reasons for this variation are poorly understood. The incidence of high blood pressure or cancer, for example, is very low among the so-called primitive people. The differences of this kind many be due to multiple factors such as genetic, environmental, demographic, and cultural.

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For example, many carcinogens are present in the environment of the urban-industrial societies but may be absent in technologically simple societies. The low incidence of hypertension in technologically simple societies may be due to diet, physical activity, and the absence of stresses and strains of urban life.

Inherited diseases: These are direct result of genetic defects. Scientists have been able to describe about 1,000 genetic diseases and this number is increasingly rapidly (Bodmer and Cavalli-Sfrorza, 1976, p. 304) due to relaxed selection. Although most genetic diseases tend to be rare, the sum of all genetic diseases is significant. Most genetic diseases are maintained by the balance between mutation and selection. The low frequency of most genetic diseases on an individual basis is due to negative selection pressure against them. However, some infectious diseases like tuberculosis also show a relatively high heritability. Without the infection of the bacillus, infectious diseases such as tuberculosis cannot develop, but the efficacy of, or capacity for, immune responses varies to from one population to another according to genetically controlled factors (Bodmer and Cavelli-Sfrorza, 1976,p.493).

To the extent that different ethnic and racial groups represent distinct gene pools, with distinctive evolutionary histories, they also reveal considerable variations in the incidence of genetic diseases. Differential natural selection (differences in various environmental stresses) such as geographical distributions of infectious agents, cultural factors such as mating patterns and migrations will all contribute to such hereditable differences. Indeed, disease is only one facet in this constant battle of adaptation.

Genetic or Microevolutionary Adaptations

If members of a population interbreed on a random basis, they build up a genetic equilibrium. This means that the frequency of alleles at a locus will not change for this population. Also, the *gene pool* of this population will tend to remain constant. However, such a hypothetical population can be subjected to a number of forces that may tend to disturb this equilibrium. These forces are mutations, natural selection, chance variation, assortative mating governed by cultural factors, migrations, and so forth.

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Mutations may provide alternative genetic material, the *allele*. One specific example is the mutation of the gene responsible for sickle cell anemia. This mutant gene is adapted to a specific environmental stress on populations faced with malaria caused by *Plasmodium falciparum*. Even though the gene in homozygous condition causes severe anemia and death, in heterozygous form it reduces the mortality from malaria in human populations. Heterozygous individuals are reported to have a higher fertility rate in areas where falciparum malaria is endemic than the individuals with normal genes.

The parasite for malaria, *Plasmodium falciparum*, is a unicellular organism that is channeled from diseased individuals to normal individuals by the mosquito, *Anopheles gambiae*. This particular mosquito clusters about habitations of its host — humans. This species of mosquito breeds in stagnant waters. When humans started cutting down forests for agricultural purposes during and after the *neolithic* times, sunlit pools of clear but stagnant water provided ideal places for breeding of this mosquito in many tropical areas of Africa and Asia. The rapid multiplication of this species of mosquito resulted in the creation of endemic zones for malaria. In short, human cultural practices seem to have modified the physical and the biological environments in such a way that the modified bio-physical environment contributed to the spread of the disease that was one of the most deadly threats to human survival, and at the same time produced one of the most deadly and widespread genetic diseases affecting humanity.

Some other factors that affect the genetic equilibrium in human populations are gene flow, isolating mechanisms of both physical and cultural factors, and genetic drift. *Gene flow* is the process whereby genes pass from the gene pool of one population to the gene pool of another population through mating and reproduction. Culturally governed mating patterns, however, may affect patterns of gene transmission. Hence members of two sympatric populations practicing endogamy based on religious affiliation, ethnic origin, or caste will avoid hybridization. Furthermore, a given human population may split into two or more subpopulations due to migration or even as a result of geologic upheavals. In this way, the subpopulations will possess distinct gene pools that may come to differ from the original pool. Finally, *genetic drift*, the random

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processes that affect gene frequencies of small, isolated populations, may have had major effect when means of transportation were meager and populations were smaller and more isolated, causing some populations to become extinct and others eventually to evolve to higher adaptive levels which natural selection could not have brought about.

Physiological Adaptations

Although the functioning of the body of an organism is generally studied at the level of the individual, the fact that populations vary in their physiological responses and capabilities to various stresses as a result of physiological adaptation is well established. During the first half of our century, some anthropologists like Ales Hrdlicka (1903) and physiologists like Hicks *et al* (1931) and Carlos Monge (1948; 1952) attempted to determine the variations in physiological responses of different populations. More recently much emphasis has been placed in the study of physiological adaptations in terms of adjustments made by individuals in response to short-term stresses in contrast with lengthy processes of genetic adaptation. Significant progress has been made in the population physiology of nutrition, and human responses to such stresses as heat, cold, altitude, and radiation. Such studies often take into account the physiographic, biological, and the socio-cultural milieu of the human groups involved.

Nutritional variation in different cultures and the human responses to this variation is of great importance to both biological and cultural anthropology, for diet, biology, and human behavior are interrelated. The nutrients we humans consume — proteins, vitamins, minerals, carbohydrates — are essential to body functioning. However, the human body displays an amazing capacity to adapt to changes in nutrient intake with certain limits. For example, when we get ample amounts of calcium in our diet, the body absorbs only 30 per cent of that taken in as part of the diet. However, if the calcium intake in the diet drops, the body absorbs a higher percentage and adapts to reduced diet (Johnston and Selby, 1978, p. 260). It is a widely recognized fact that the diet of the people of a particular area is greatly influenced by local conditions of soil and climate, the density of population, extent of urban contacts in peasant societies, local religious

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customs and traditions relating to fasts, feasts, and food taboos.

Our somatic cells contain hereditary material (deoxyribonucleic acid or DNA) which transmits information to cells that aids in the synthesis of proteins. These proteins are essential for the construction, development, and functioning of the body. Of the twenty amino acids regularly occurring in biological materials, our body is either unable to synthetize eight of them or is unable to produce them by conversion (Stini, 1975, p. 64). Human diets, therefore must include food articles that provides these essential amino acids. The diverse food habits and food taboos along with ecology may, therefore, affect nutritional imbalances in agrarian societies than in hunting-gathering societies, for most of these amino acids are easily available in meat, fish, eggs, and milk and are easily absorbed by the body than those that are obtained from foods of vegetable origin. The overconsumption of the so-called junk foods and excessive consumption of high calorie foods in technologically advanced societies also has implications for the health and disease picture of these societies. Excessive consumption of sugar in foods is responsible for tooth decay and fat deposition in the body. The latter in turn, is related to heart disease.

Conclusion

Disease has been a fundamental problem for all human societies – prehistoric or historic, simple or complex. The process of disease among humans depends on the characteristics of disease agents, the characteristics of the human host, and the latter's response to disease producing stimuli arising in the environment. The response to disease stimuli can be biological such as the production of antibodies within the human individual or mutations, just to mention only two. It can also be cultural such as using medicine, religion, or magic. Disease and health, therefore, are dynamic processes in which there is a continuous battle on the part of the human individual and the human group to maintain a positive balance against biologic, physical, mental, and cultural forces tending to disturb his health equilibrium. The occurrence of disease in human individuals or the status of health or the distribution of disease in human groups (disease ecology) can be understood best by

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a consideration of the multiple causes influencing the agent-host relationships in the environment before, during, and after the disease process. The significance of the last two is of not only historical importance but also indicative of patterns of human behavior involved. It is this study of *all* the forces (physical, biological, and cultural) affecting the health equilibrium of the human individual and groups, in *all* the places (whether it is in New York or a village in Africa) and *all* the times (prehistoric, historic, or modern), I call medical anthropology. This *holistic* approach of anthropology makes medical anthropology distinct from medical sociology. The ecological approach in anthropology and the theory of biocultural adaptation provides common grounds for collaboration between health professionals, medical scientists, and anthropologists.

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ETHICS AND THE SOCIAL SCIENCES: THE "BEYONDIST" SOLUTION

RAYMOND B. CATTELL

Several years ago (1948) I was moved to write in the *American Psychologist* an article challenging the naive and dangerous manner in which many social scientists indiscriminately mixed their personal political and religious values with their more scientific conclusions. Andreski (1972) has illuminated the same problem.

Criticism of such skullduggery is not enough. There must be a constructive solution if social sciences are to be applied, and so with progressive clarification (1938, 1944, 1950, 1972) I have sought to develop what might claim to be a system of ethics of the same metal as science itself. Naturally this ethic asserts that the new wine of science in human thought cannot safely be kept in the old bottles of "revealed" religion, and that the duality of knowledge of fact and values, beloved of many philosophers from Kant to Russell, must be abandoned.

That the ethical basis of morality should have been linked with religions throughout history is a natural consequence of the fact that religions had the function of answering the basic questions "Where am I?," "What am I?," and "What therefore ought I to do?" World views and moral values logically belong together. So if science in the last few hundred years has given clearer answers to "Where and what am I?," it is time it also gave answers in the field of human values.

Need for an Evolutionary Ethic

The search in the domain of science for a foundation leads one to the largest writing on the wall: that recognizing the pervasive principle of inorganic and organic evolution. For an ethics derived from evolution one might be tempted to use a label such as Progressivism or Human Betterment or Advance; but I adhered to *Beyondism* for reasons that will become clear. They have to do with the difficulty of objectively defining progress, and the possibilities of diverse directions of progress, so that what remains essential is a spirit to adventure beyond existing horizons.

Three indispensable, central concepts have to be defined and

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used in accepting evolution: 1) that there must be genetic and cultural *variation*; 2) that it must be followed by *natural selection* for adaptation. (Genocide by man is questionable; but with the actions of genocide by nature we must be in harmony); and 3) that both have their meaning with regard to a given or potential environment. Among secondary principles we have to recognize that natural selection acts both upon individuals and groups. The operation of natural selection upon groups may in lower animal species be little more than a summation of selection on individuals. But in complex human societies it is responsive to emergents beyond the individual in the pattern and organic life of the group. Thus, while it still acts on individuals as such, one must recognize also the truth that individuals, regardless of their own characters, live or perish with the culture-genetic group to which they belong.

In asserting that much selection operates on groups Beyondism is apt to get spattered with the torrent of ink that flows over a "philosophical" debate on "the relative importance of the individual and the group" which has centered particularly on Hegel's apotheosis of the group versus the Christian belief in the importance of the individual. In an evolutionary setting this issue becomes as pointless as seeking the relative importance of the hen and the egg. One must at least accept Hobbes' dictum about the poverty of development of the "isolated savage," and recognize that the most brilliant Nobel Prize winning chemist would be inglorious, if not mute, living without his apparatus in a mud hut. Natural selection must act primarily upon groups as such, *because the type of individual is needed whose development requires a group and who contributes to a successful group.*

Natural Selection Works on Societies Also

So long as men live in societies, by reason of such organizations being biologically more viable than amorphous collections of anarchic men, natural selection will eventually come to act largely on societies. Those societies will have higher survival rates whose members follow ethical rules akin to the ten commandments, calculated to keep the group in being, and whose level of individual altruism reaches a sufficient level of supra-personal dedication to the life of the group. The rules which best meet this need have hitherto been intuited by religious

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geniuses, but with the modern advance of the social sciences, with measurement and mathematical models, it should be possible, proceeding through empirically based laws, to infer those behaviors in individuals that best assure group survival. Ethics would then no longer be the perquisite of dogmatic religion, nor the plaything of modern moral relativism, but would take its place as a firm branch of science, though open to debate and fresh experiment as all science is. Parenthetically that could do much for our present ills — rising crime, drug addiction, violence and pointlessness, which are no longer, in a prosperous age, to be smugly ascribed to evils of poverty and lack of education, but surely arise from the demolition of the authority of revealed religion in the last century.

The conception of a rationally based ethics is, of course, far from new. The Priestley-Comte-Bentham-Mill-Spencer line of development, in most of which "the greatest happiness of the greatest number" was the accepted social target for inferring the courses of individual behavior, had its successes in legislation and in liberal thought. However, it is generally recognized today that this rationalist ethic failed to establish itself with either the common man or the philosophers. It probably failed with the former because it did not reach into his life, the social "sciences" then being unable to demonstrate what ethical rules would reach the given goal, in the way that an electrician can tell us what will make a TV set work. It failed with the philosopher because the goal had no precision, "units of pleasure" or happiness being hard to define. From a Beyondist standpoint it failed in a still more crucial sense: that it chose the goal subjectively, as appealing to the simple mind of the reformer, rather than discovering the goal by scientific research into the system of nature to which man belongs. The goal of the Utilitarians witnesses mainly to the kind hearts of nineteenth century liberals and their continuation of the vain thinking of the French Enlightenment — pure reason without science. Indeed, the whole pattern of pre-biological, pre-Darwinian political thought is evident still in the obsolete, staunchly conservative thinking of the "liberal" intelligentsia today.

The contribution of Bentham and Mill was that at least they broke the crust of inhibition, imposed by established custom and religion, thus leading to a consideration of ethical values

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derived from other sources than revealed, inspirational, dogmatic religion. However, no tour de force such as some have proposed, e.g. including the happiness of future generations in the assessment of "the greatest happiness of the greatest number," can reconcile the comfortable, man-encapsulated philosophy of Utilitarianism with the penetration of a stark outer space which is the essence of Beyondism.

From the basic proposition above, that variation and natural selection act upon societies, we must now move on to examine the next proposition: that natural selection has to act upon a combination of *genetic* and *cultural* characters. In so doing we also recognize that success or failure of a group does not weigh its morality alone, but responds to the primary efficiency and intelligence of the cultural habits and the adaptiveness of the genetic mutations which it has accumulated by acts of nature. However, as eugenists have long argued, man is not helpless in the latter area: he can to some extent control mutation rates and he can be alert to fostering mutations which reduce the culturo-genetic lag i.e. the disparity between what a successful culture demands and what an otherwise haphazard supply of births provides.

In arguing that the advance of cultures proceeds by essentially the same laws of variation and selection as genetic advance we are omitting reference to lesser modifying principles and to complexities which the study of social evolution has not yet mastered. Cultural reformers may have sufficient insight to hit a success rate better than 50-50, but their insight is far poorer than their confidence warrants, and cultural changes come essentially under the same laws of trial and error learning as do gene mutations. However, the survival or non-survival of a group culture is not the all or nothing fate of a biological organism, since cultural elements from it are often imitated and cannibalized by other cultures, with possibilities of wise or unwise choice. And though the extinction of a race commonly brings extinction also of its culture, the extinction of a culture may at most produce only a dwindling of the associated race.

Cooperation of Man With Nature

Obviously the adoption of an evolutionary, Beyondist ethic calls for a cooperation of man with nature in facilitating

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more intelligently the perceived goals. This calls, for example, for universal cooperation for the protection and encouragement of racial and cultural variation, and an international research organization to promote better measurement, recording, and analysis of the cultural and genetic experiments proceeding, in order to arrive at understanding in scientific laws. Among those laws would be the ethical laws best suited to cultures in general, with the modifications appropriate and best fitted for each geno-cultural experiment. On the value of such a major comparative central research organization in monitoring the socio-genetic health of communities, and of detecting what is moribund before a society collapses, a little more will be said below.

Morality involves ethical laws both in behavior among individuals and among groups, and since analogous analyses would lead us to expect that these would not be the same, the Beyondist will demand careful study before subscribing to popular views that ideally they should be the same. For example, there may be arguments for reducing competition among individuals in a group, but not for eliminating competition among groups. This and other further analysis of inferences and lesser principles from the basic evolutionary principles can perhaps be most interestingly pursued in handling criticisms that have arisen from the impact of Beyondism on conservative and entrenched political and social opinion today.

In the first place no biologist, and few widely educated psychologists, can fail to have perceived that many sociologists and cultural anthropologists completely ignore genetic factors in culture. They borrow from psychology only a Pavlovian-Skinnerian learning theory, not the newer, comprehensive structured learning theory. (Cattell 1979) The assumption is explicit in some, and unexamined in others, that any culture can be grafted with equal ease upon any racial stock. While modern quantitative investigation of this is too rare (Jensen, Loehlin, Lindzey and Spuhler, Lynn) to be invoked, it surely takes a minimum of imagination to recognize that a modern industrial-cybernatic culture could never be taught to and sustained by pre-Neanderthal man – at least by the genetic make-up of the Australopithecoid man with a brain capacity about one half of modern races. And any teacher will recognize that our present sub-culture of perhaps a thousand physicists practicing advanced nuclear research would vanish if the spread

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of I.Q. above 110 were cut off. There may well be elastic but real boundaries also in what inherited temperament does to the forms of culture can be stabilized.(1) The sociologist seeking to preserve his pure environmentalist beliefs is apt point out that cultures and genetic or racial groups are so "inextricably" mixed, that no one can argue for any importance in the genes of a population. Actually the fact that races and cultures are not correlationally independent is a powerful argument for some causal dependence. The Beyondist view that both genetics and learning are involved in the formation of a culture is certainly well supported at presently attainable levels of method and analysis by the scholarly writings of Huxley, Keith, Chomsky, Darlington, Lynn, Eysenck, Jensen, Waddington, and others.

Competition Between Groups

The second derivative principle of Beyondism that has met rather similar heated criticism, especially by would-be idealists among the young (bound to the "progressive" slogans of the last generation) is that which requires free competition among groups (and therefore, in certain ways, within groups). A liberal should have no difficulty in digesting these inferences for it is central in the original liberal economic doctrine of "laissez faire" and free trade. But competition and natural selection raise the spectre of war, and evolution certainly requires that there shall be expansion and retraction of cultures, else there can be no outcome in relative survival. The concept of competition here, however, has two special developments in it, first in what is defined as cooperative competition, and secondly in its avoidance of what may be called explicit, emulative and imitative competition. As to the first, if all groups perceive that they are aiming at a common purpose of human progress, which, because of our blindness, can be achieved only by agreeing to vary and await the verdict of nature, they have the emotional unity of a cooperative compe-

(1) Both psychiatric experience with the psychopathic temperament, and behavior genetic findings of appreciable inheritance of the super ego factor G (Cattell, Blewett and Beloff 1955) suggest that a society of such genetically selected individuals would not be viable. The measurement of the performance of groups, in which pre-measured individuals are put together in small groups, shows considerable dependence of group syntality performance on personality traits known to have significant genetic determination. (Cattell & Stice, Haythorne, Lawton, Wispe)

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tition. As to the effect of a too-explicit competition we recognize on the one hand that the lilies of the field toil not nor spin, yet evolve, whereas man and some higher animals get involved in warfare, developing burdens analogous to the massive antlers of the stags, or, even worse, beginning to run races along set courses with their minds closed to more creative directions of variation.

After two world wars virtually within a generation objections to competition on the grounds that it engenders war are understandable. Actually, war is no more a desirable or necessary part of competition than fisticuffs and temper tantrums in a football game. If writers in panic argue against competition because of war they need to be reminded that the advance of science or the rise in standard of living should also be halted; for the former makes war more destructive and the latter makes it more prolonged. To reject the indispensable principle of competition because of the risk of degeneration into war is a perfect example of throwing out the baby with the bath water.

What *is* a necessity for Beyondism — and one difficult for the comfort-loving liberal intellectual to understand — is some mechanism for expansion of successful cultures and retraction of moribund societies. Imitation of successes will not alone guarantee this. Incidentally, the lack of a wisely-evaluating and lawful process for expansion offers a constant threat of war, as surely as screwing the saucepan lid down promises some ultimate explosion. The emotionality which has developed journalistically around such terms as "imperialism" and "colonialism blinds the public to the fact of life. The fashion of making "imperialism" an obscenity should not blind us to the logical necessity in natural selection of ensuring greater population and resources to societies which make a better adjustment to the natural world.

The inherent problem in any attempt at peaceful adjustment in expansion and retraction is the likelihood of hasty and erroneous judgment. We have said that a central world research organization should be supervising what technically might be viewed as an analysis of variance experimental design, with cultural and racial "effects," and if this were sensitively conducted the cautions now inherent in scientific judgments would preclude the hasty enthusiasms of the world for particular cultures. Insistence on the difficulties of such judgments,

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however, is often a cloak for failure to accept the basic change of values required by Beyondism, namely that cultures and races, like individuals, are born to die. Biologists, counting the records in the rocks, tell us that no less than about 95% of all once-existing species and races are now extinct, and an historian might reach a similar count for cultures. Journalists may scream against "genocide," but if they include genocide by nature rather than by man, as they apparently do, they are being ridiculous. Nature is concerned with evolving life, not with preserving a living museum of all species, and genocide, like individual death, is the only way of clearing space.

Since one of the main misunderstandings of and attacks upon Beyondism has arisen from its giving equal importance to racial (or genetic) variation and cultural variation alike one must unfortunately take an appreciable digression to disperse this fog of misrepresentation. In the first place an evolutionary experiment today would not be much concerned with the concept of the traditional major geographical races, which are largely the products of geographical isolation and climatic adjustment. It would be concerned instead with specific Mendelian populations or micro-races, with actual breeding populations and the gene pools which they represent. As the study of human genetics advances it will be concerned still more with genetic experiment selective reproduction and the cultivation of mutations – always to be put to the test of health and survival potential.

An aspect of Beyondism which is more seriously in need of consideration than this misfiring, puerile issue of alleged racism concerns the definition and recognition of group success and vitality as contrasted with the sickness of a culture. Although in the last resort there exists a firm operational definition of failure, in the inability of a group to survive as a group, such as happened in Sodom and Gomorrah, in the Roman Empire, in the extinct culture of Angkor Vat and countless other examples from history. Beyondism can at present only provide a definition of disease too crude and too late to offer a cure. In this matter, any ethic derived from science calls for the inauguration of a kind and a volume of research in the social sciences such as is nowhere conceived at the present time. If the deliberate planning of genetic and cultural variation is to follow an enlightened, optimal design, and the recording

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and analysis of observations is to throw light on the causes and consequences of corruption and ill health in societies, a supernational research organization of cooperating scientists will be needed. One must leave to the future (2) the evidence that it will be possible to distinguish a moribund from a healthy society (before the moribund society actually expires) by certain diagnostic measurements, just as a doctor does with the human organism. As in biological organisms these signs may be somewhat different in different species but a common core will exist. Consequently, despite the somewhat different directions in which particular socio-genetic experiments will be heading, the objectivity of the goal by which moral behavior and other desirables in a society receive sanction remains beyond cavil; for in the last resort it is still survival or non-survival.

The conception of an organized world research center brings us to a subtle but important difference between the Beyondist conception and that which has been urged by the majority of advocates of "one world." The latter is a very old aspiration of both idealists and conquerors. It appeared in the dreams of Alexander, in the concrete citizenship of the Roman Empire, in the Medieval Christian church, in the megalomania of Ghenghis Khan; in countless writers (practical and impractical) of which Montesquieu and H.G. Wells are good representatives, and in the slogan "One World" of a U.S. presidential candidate (Wendell Wilkie). If this concept means one *uniform* world, culturally and racially, as many enthusiasts interpret it, then, to a Beyondist, it is the worst catastrophe that could occur to mankind. Under what I have discussed elsewhere as "the hedonic pact" (Cattell 1972) it could put a stop to evolution, as accumulating entrophy brings a faulty organism or machine to stasis. Whether such an homogeneity would be stable indefinitely is a nice question, not for pursuit here, because we have argued that it must be avoided. The "one world" of a Beyondist, by contrast, is a world organized richly with nerves conveying

(2) Let us make no mistake, about the superb scientific training and natural genius that will be demanded to make progress in this area. The subleties of concept and the mathematical complexities of systems theory needed may well surpass those encountered in modern physics. Only in the last decade or two have we had even a crude *beginning* (Alker (1966), Cattell, Breul & Hartman (1952), Cattell, Graham & Woliver (1978), Rummell (1972), Sawyer (1967)) of attempts to discover the dimensions of functionning of national groups by which development or decline might be analytically measured and evaluated. From description to interpretation and prediction is a long step that the science of culturo-genetic organisms still has to take.

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information to a research center acting in an advisory capacity to a highly differentiated array of national experiments.

Distinct Species of Mankind?

The possibility has to be considered that mankind should not be encouraged to remain a single biological species. Biologists tell us that when a genus comes to be represented by only one or two species this is often the prelude to its extinction. Whether this is simply from the risk of having put all its eggs in one basket, or because a low proliferation is itself in some way a sign of reduced vitality is not clear.

Since an appreciable upheaval of commonly accepted ideas follows on the recognition of a Beyondist position one is moved, in conclusion, to come back to the original problem of assent to its basic postulate and ask how compelling the argument is for embracing the evolutionary process. There are two answers to this in increasing depth. First, if our intellects are not sufficient for us to see by insight that this or any other course is correct – and admittedly we know little more of what is going on than an ant in a computer room – it is logical to aspire to an evolution of larger brain power. Rousseau and the inspirers of the French Revolution, with its rational, unempirical idealism, believed – as Johnny Small today is taught to believe – that human perfection is only just around the corner and that a perfect education will bring it about. By contrast the Beyondist sees a succession of horizons, approached hand in hand by genetic and educational advances. Perhaps the first indication of genetic brain inadequacy will come when the march of science slows, as the industrious collection and collation of data demands solutions and perceptions of relations too complex for existing man to grasp.

Secondly, though we may have freewill, we actually have only the option, as individuals, of either joining the stream of evolution or committing suicide, literally, or by refusing to reproduce when one has a positive genetic contribution to make. Dissidence is here self-annihilating, and, since we are in the field of values it is meaningful to apply such religious expressions as "blasphemous" or "diabolical" to contempt of the evolutionary principle.

The current problem in developing a wider recognition of evolutionary principles, that would guide legislation, broaden education and inaugurate research, is an emotional one.

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Beyondism comes as a doctrine as stern, impersonal and abstract as that of the evolution of the stars. It accepts the reality of success and the tragedy of failure, in which individuals and races may have to recognize that they have been anvil and not hammer in the shaping of the future. What new emotional synthesis of values will make adjustment to this vaster view not only possible, but a sustenance for the good life of everyday behavior, remains to be discovered. Mankind recovered from the blow of Copernicus's demonstration that the earth is not the centre of the universe. Man's growing imagination may yet cause him to smile at the comfortable myth that he is the apple of God's eye. It can arm him to look with steely courage and sober hope at the task of bringing a species now little above an ape into greater command and knowledge of the Universe.

Science and Religion

This article began with the problem of the intrusion of religious values into science. It ends by recognizing that science must be the source of religious values. However, society faces an enormous task of emotional education before this can be fulfilled. Art, music and poetry have over the centuries helped teach the emotional expressions and adjustments that tie most of mankind to the great revealed religions. The presently needed transition, which demands a quantum leap emotionally, to a Beyondist adjustment, will need interpreters of no lesser literary and artistic genius if it is to succeed.

Unfortunately, our journalists and mass media controllers today are blindly and unquestioningly locked into the values (or the simple antitheses thereof) of the literary worlds in which they were educated and most are interested in change only in a superficial kaleidoscope of spinning fashion. The meaning of science appears to them, in most cases, only as the indulgent provider of the "good life," as the tell-tale phrase has it. One suspects that the human source from which the new values of Beyondism will eventually flow will be the socially reticent minority of dedicated scientists who have learnt in their own lives both the imagination and the realism necessary to embrace these new ethical values.

The casually thinking majorities, and the mass media, if one may judge by the character of the recent attacks on Sir Cyril

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Burt's emphasis on inheritance in intelligence and on Dr. Wilson's sociobiology (not to mention those on the present writer's Beyondism book) are going to respond with a naive and false "moral indignation" to appeals which transcend their comfortable "humanistic" position in the light of evolutionary realities. Psychologically they manifest the same mixture of vanity and self-indulgence as blocked for a century Copernicus's attempt to shift the earth from the centre of the universe and harried Darwin when he proposed to remove man from a privileged position outside the biological world. The Beyondist who recognizes the passing away of races and cultures in nature's continual genocide is not an "inhumanist." His compassion for these events and for individual death, which is part of the same plan, is no less than of the humanist. And his acceptance of the evolutionary goal enables him in fact to find more human ways of achieving it, as when he substitutes for harshness of a differential death rate the eugenic method of a differential birth rate.

If a man begins with the false values of many revealed religions then, as he encounters the expanding world of scientific knowledge he will conclude like Keats that "but to think is to be full of sorrows and leaden-eyed despairs." But if he recognizes that the divisions of mankind are engaged on their several pilgrimages to different goals, but with a common evolutionary purpose, he has both peace of mind and a practical ethical system for human affairs.

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THE CULT OF BRIGID: A STUDY IN PAGAN-CHRISTIAN SYNCRETISM IN IRELAND

DONÁL Ó CATHASAIGH

Recent inquiries into the authenticity of certain saints by the Roman Catholic Church emanate from modern anthropological and historical studies. Local saints, especially those reputed to have lived in the transitional period, when pre-Christian to Christian assimilation was most active, have lost their honored places in the "Calendar of the Saints." (1) The Church has not actively attempted to discredit her former patrons and patronesses; she has simply instructed the faithful that many of the "old school" fail to satisfy the rigorous requisites for canonization and no longer qualify for attendant rights and privileges of sainthood. The Catholic world greeted the news of desanctification with apathy, possibly because the majority of the "elder saints" had already lost currency, while favored "elders" would retain devotees in spite of Vatican judgments. They were saints by consensus.

Irish venerables of the fifth and sixth centuries were among those scrutinized by Roman authorities, though investigations of Brigid and Patrick, the fifth-century patrons of Ireland, have not led to an official disqualification. In spite of inferences by Dillon, Chadwick, and MacCana that the Christian Brigid is the euhemerization of a Celtic goddess (2) and research by the prominent Celticist, T. F. O'Rahilly, that yields, not one, but two Patricks, (3) the Church has retained both the abbess and the bishop as "Calendar" saints. They continue to be commemorated on February 1 and March 17 locally and inter-

(1) "The Calendar" is the official listing of saints in the Roman Catholic Church and authenticates those currently recognized.

(2) Dillon, in his chapter "Celtic Religion and Mythology and the Literature of the Otherworld," states that Brigid "appears to have been Christianized as St. Brigit." Myles Dillon and Nora Chadwick, *The Celtic Realms* (New York: The New American Library, 1967), p. 144. Chadwick argues that "St. Brigid herself, if she ever existed, appears to have taken over the functions of a Celtic goddess of the same name and comparable attributes." *The Celts* (Harmondsworth, England: Penguin Books, 1974), p. 181. And MacCana notes that "no clear distinction can be made between the goddess and the saint." *Celtic Mythology* (London: Hamlyn, 1970), p. 35.

(3) Thomas F. O'Rahilly, *The Two Patricks* (Dublin: Dublin Institute for Advanced Studies, 1957).

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nationally. And, in Ireland, they are specially revered in rites at holy wells, on mountain heights, and among ancient ruins.

Brigid and Patrick survive partly because of their long-standing significance and because the matriarchal symbol and the druid-saint cannot readily be dismissed. Certainly Patrick's "Confessio," which admits of a humble cleric persecuted for his beliefs, contrasts starkly with the spell-casting, druidic figure of Muirchú's seventh-century *Life*. (4) O'Rahilly's "Two Patricks" (1957) resolves the confusing chronology of Patricius by disclosing that there was a Palladius who had antedated him as bishop. But Joseph Duffy's defense of Patrick's spirituality (1972), which minimizes the historical arguments, reiterates the Saint's legitimacy.(5) Patrick is secure for the moment.

About Brigid there has been scant evidence by the moderns. (6) Still, certain questions need be asked about her origins, her functions in early Irish society, and about existing traditions and lore that testify to her eminence in the Celtic scheme. In what sense is Brigid a Christian saint? To what extent is she the personification of a Celtic deity? A consideration of mythological sources, histories and hagiographies, and an examination of surviving Brigidine festivals and lore suggests a pagan-Christian syncretism. [Illustration 1]

The Celtic Goddess

Early Irish society was an amalgam of the indigenous population — those non-Indo-European builders of the megalithic tombs — and the Celts who came from the Continent in successive waves from the fifth to the first centuries B.C. About the earliest inhabitants, next to nothing is known. About the Celts, the scholars have synthetized a body of evidence from the accounts of ancient historians, the archaeological and linguistic data collected principally in Gaul and Britain, and the pseudo-

(4) See Kathleen Hughes, "The Golden Age of Early Christian Ireland," in *The Course of Irish History*, eds. T. W. Moody and F. X. Martin (Cork: Mercier Press, 1967), p. 79.

(5) *Patrick in His Own Words* (Dublin: Veritas Publishers, 1972).

(6) The late Father F. O'Brian, author of "Saga Themes in Irish Hagiography" in *Feilscrihbinn Torna, Essays and Studies Presented to Professor Tadhg Ua Donnchadah* (Cork: 1947), had begun an extensive study of Brigid. Fr. O'Briain's notes are in the archives of the Franciscan House of Studies, Killiney, Co. Dublin, Ireland.

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Figure 1: "Two Brigids." The tricephalic stone head from Corleck, Co. Cavan (National Museum of Ireland) provides a Brigidine type. The Italianate interpretation is contemporary.

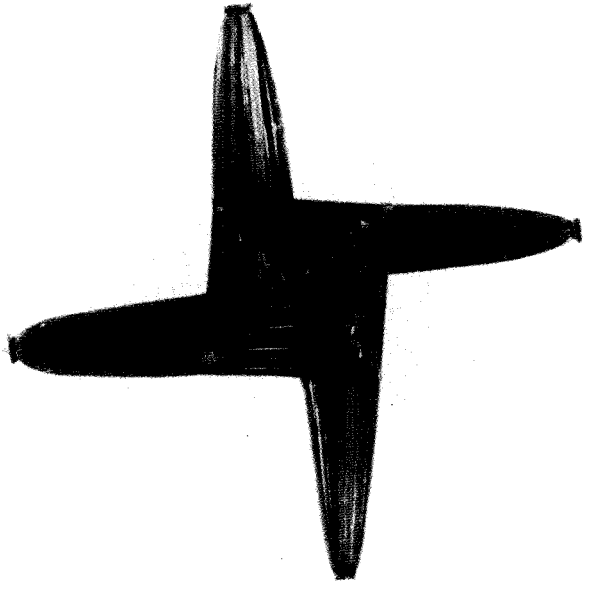

Figure 2: A typical Brigid's Cross, woven near Saughart, Co. Louth.

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historical Irish manuscripts of the late-eleventh century and after. (7)

The earliest Celtic migrations are dated approximately 500 B.C., and for the half millennium preceding the birth of Christ, they are traced both from Europe directly into Ireland and from Europe across Britain. What is certain is that, by the second century B.C., an advanced La Tène culture had reached the island, and that, by the first, the Belgae had closed ranks and the Goidels (Gaels) had swept in from the Continent. By the advent of Christianity, sometime prior to A.D. 431, (8) political maneuvering continued but there was a coalescence of the various Celtic migrations and the emergence of a dominant Goidelic strain.

Meanwhile Roman occupation of Gaul and Britain had gone forward and the character of Celticism had been dramatically altered in both areas. The cultural link with Ireland had been fractured, and the hybrid Gallo-Roman civilization that replaced it had shed much of its Gaulish "barbarism." The principal custodianship for the Celtic heritage passed then to those on the edges of the Roman world – to the insular Celts of Ireland.

When Christianity was introduced in the fifth century A.D., the country already had well-defined political divisions, a stratified feudal system, and a vernacular that unified the entire population. It was bound, too, by common religious beliefs and practices and by a druidic order charged with ritual and divination functions. Though the precise nature of Celtic rubrics has been lost to us, the religion appears to have fused elements of polytheism, pantheism, and primitive magic. Indeed, the artifactual findings and mythological scraps hint that the Celts commemorated a loose confederation of impersonal "over-gods," topographical (nature) deities, and what might be called "divine magicians."(9)

Identifications of more than 400 gods and goddesses, 300 of which occur only once, have been turned up by the scholars

(7) MacCana reflects that the re-writing of tradition continued through the twelfth century pseudo-history, *Leabhar Gabhála Éireann* ("Book of Conquests of Ireland"). Fragments of the MS. are dated late-eleventh century.

(8) Though A.D. 431 is the traditional date for the Christianizing of Ireland, historians are agreed that missionaries had made converts sometime earlier.

(9) See A. G. Van Hamel, "Aspects of Celtic Mythology," *Proceedings of the British Academy*, 20 (1934), 207-48.

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over the years. The overgods, like Lugh (Samildánach – "the many skilled"), were the more prominent and had a universal significance throughout the Celtic world. (10) When Caesar described a Gaulish pantheon with Mercury supreme, it is clear that he referred to the god Lugh. There are two inscriptions from Spain and Switzerland and a wide distribution of derived placenames – Lyon and Laon in France, Leiden in Holland, and Leignitz in Silesia – that attest to his influence on the Continent. He is the Lleu of the Welsh tale, "Math vab Mathonwy," and the stammering deliverer of Irish divinities who originates overseas. Lughnasa, the major harvest festival, certainly celebrated him.

There are other deities approaching Lugh in importance, among them, the triadic goddess called Brigid. Caesar singles out this "Gaulish Minerva," mother-goddess and patroness of the arts, as primary among the distaff pantheon. And, though his parallels may be more descriptive than literal, it is surely the Celtic Brigid who bears the closest resemblance to his Minerva. Brigid's name suggests "the exalted one" and is cognate with that of the Brigantes, a far-ranging tribe of Britain and the Continent. Besides a sanctuary to Minerva in Britain, there are four Gallo-Roman inscriptions and the Rivers Brent (in England), Braint (in Wales), and Brigid (in Ireland) that testify to the prestige of the goddess throughout Celtica.

When Cormac MacCuileannáin, Bishop and King of Cashel, compiled his *Glossary* at the end of the ninth century, he provided the following entry on Brigid:

> she was a goddess whom poets worshipped, for very great and very noble was her superintendence, therefore call they her goddess of poets by this name, whose sisters were Brigit, woman of smithwork, and Brigit, woman of healing, namely, goddesses – from whose names Brigit was with all Irishmen called a goddess. (11)

The Celts regularly formulated paradigmatic triads (Gerschel, 1956; and Dumézil, 1966), and the concept of a Brigidine trinity comes as no surprise. What is noteworthy is that her attributive functions as poet, physician and artisan were critical to the survival of simpler societies. In fact, Brigid's station was

(10) MacCana, pp. 27-29.

(11) Quoted in Douglas Hyde, *A Literary History of Ireland* (London: Ernest Benn Ltd., 1967), p. 53.

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such that, if we understand Cormac rightly, her name came to be synonymous with the word "goddess."

Robert Graves, in *The White Goddess*, considers a succession of myth tales that variously identify the Triple Goddess Brigit as the mother the Dagda (the "Good God" and "Great Father"), as the Dagda's mate, and as his three daughters bearing the same name. (12) Later it is said that three of the Dagda's descendants – Brian, Iuchar, and Iuchurba – married the three princesses who together owned Ireland – Eire, Fodhla, and Banbha. This last statement might be irrelevant, if T. F. O'Rahilly, interpreting a gloss on a ninth-century text, hadn't introduced the notion that three *gods*, called Brian, Iucha(i)r, and Úar, were also sons of the *banfhili* Brigid. (13) Still, the contradictions that complicate the problem of positive identification tend to reinforce both the preeminence and the triune nature of the goddess.

It is difficult to resist etymological speculations that connect Brigid to Danu of the *Tuatha Dé Danann* in the Irish Mythological Cycle. (14) It is a credential that would further establish her claimer as the matriarchal Celtic deity. But Brigid's several blood associations with the All-Father Dagda – as his mother, his bedpartner and his daughter(s) – and with the symbolic riverine waters (life fluids) are additional manifestations of maternity. Moreover, if Imbolc, the spring rite celebrating the lactation of ewes, was her festival and if she functioned as "household protector," as the scholarship implies, the cult of a mother-goddess can be confirmed and can be collaborated from the syncretism of the pagan-Christian traditions.

The position of female deities in Celtic religion has been underestimated and obscured. Most goddesses seem to have been topographical – i.e., they have connections with land formations (Anu – "The Paps of Anu"), lakes or rivers (Boann – the Boyne), and sacred wells (Brigid – Bridewell) – and seem to serve as guardian and fertility genuses. Oblations and sacrifices would have been offered at their sanctuaries. However, druidic rubrics, preserved as they were in oral formulae,

(12) (New York: Farrar Strauss and Giroux, 1970), pp. 101-02.

(13) O'Rahilly devotes several pages to interpretations of the phrase *tri dee Danann* and introduces the gloss. *Early Irish History and Mythology* (Dublin: Institute for Advanced Studies, 1964), pp. 314-16.

(14) The *Tuatha Dé Danann* combined the various groups of pre-Goidelic deities, and the name appears to mean "People of the Goddess Danu."

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have long been forgotten, and Irish monastics, as the later redactors of the myths, had little reason to commit pagan beliefs to manuscript.

The monks recast the mythology as history, translated the gods to heroes, and rejected whatever was inimical to Christian teaching. What is perhaps more important is that these celibate scribes were often anti-feminist reformers with a strong ascetic bias. They were probably responsible for editing out the creation myth and expurgating the texts of sexual allusions. (15) The female deities would have suffered at their hands.

Certain of the Celtic goddesses retained their vigor and were, during the transitional period, metamorphosed into Christian religious or saints. The Caillech Bhérri, a tutelary deity associated with the Kerry peninsula was, for example, transformed from an ancient divinity to an aged nun. Fragments of an eleventh-century poem, titled "The Nun of Beare," defy integration but illustrate the dilemna of melding such conflicting personalities. And, Brigid, the patroness of Ireland, shows incredible likenesses to the Celtic goddess from whom she takes her name. But, is the saint simply a euhemerization of the goddess or is she an historical personage of fifth-century Ireland? A study of the histories and hagiographies should resolve the mystery.

The Abbess-Saint

The biographical-historical references to St. Brigid are numerous, though none is dated earlier than the seventh century. In that period Broccan is credited with a Latin hymn of fifty-three quatrains celebrating her life and deeds, and Cogitosus, a member of the Brigidine community as Kildare, wrote the prose *Life*. (16) Brigid was, after all, Cogitosus' patroness, and it was important that he transmit "few of the many things handed down by the great and most wise." (17)

(15) Charles Bowen "Great-Bladdered Medb; Mythology and Invention in the *Táin Bo Cualnge*," *Éire-Ireland*, 10 (Winter 1975), 31-34.

(16) The metrical life in the *Book of Hymns* (11th-c MS.) is ascribed to St. Broccan or Brogan Cloen who lived in the early seventh century. Hyde, p. 163. Cogitosus' version of the *Life* appears in Colgan's *Trias Thaumaturga* (Louvain, 1647).

(17) Quoted in Kathleen Hughes, *Early Christian Ireland: Introduction to the Sources* (Cambridge, England: Cambridge University Press, 1972), p. 227.

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Not only would Brigid's sanctity and miracles redound to the spiritual reputation of the Kildare community, they would establish its institutional primacy in Leinster. There is no question that, after the seventh century, Kildare had achieved such prominence.

Cill-dara ("Church of the Oak") became a thriving monastic center, if not "a great metropolitan city," as Cogitosus claimed. It had jurisdiction over a sizeable *paruchia* (lit., parish) though it is improbable that its domain stretched "from sea to sea." There were, in his time, two segregated communities – one male and presided over by a bishop, the other female and headed by an abbess – that shared a partitioned timber chapel. This mixed arrangement with a double line of succession was very likely the first of its kind in Ireland. In a century and a half Brigid's settlement had expanded from a modest oratory to a monastic village with a scriptorium, a "studio" for metal arts, and a mill. It has been located five miles from Knockaulin, a former pagan sanctuary.

What Cogitosus provides in his *Life of Brigid* is a pseudo-saga, a catalogue of marvels and miracles attributed to the Saint. He would have his epic heroine to rival a Deirdre or a Medb and his saint to rival Patrick. (18) According to Cogitosus and later dependent biographers, Brigid was daughter to a slave woman of Dubhthach (tenth in descent from Felimidh, the second-century lawgiver-king of Ireland). Because Dubhthach's wife became jealous of the bondsmaid, the king was pressed to sell his slave, and he sold her to a druid. Brigid, the daughter of the king, was thus born into the household of a druid but as a slave. Her birth was attended by celestial wonders.

In later years she returned to her father's house to perform domestic duties, but Dubhthach's wife insisted that the daughter be sold into bondage. When he realized that Brigid's generosity was depleting his resources, Dubhthach finally submitted and brought her to the king of North Leinster. The girl, a radiant beauty, was sought after by suitors, but she rejected them because she had dedicated herself to the contemplative life. Sometime later with seven other virgins, she consecrated herself to Christ, and eventually she returned to her father's lands in Kildare where she founded the monastic community.

(18) Bowen, pp. 30-31.

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Cogitosus logs a number of miracles of plenty associated with the Saint. She dispenses butter, which is immediately replenished; she performs triple milkings, changes water to ale and stone to salt. She offers hospitality to the poor and comfort and healing to the infirm.. To Cogitosus she is Brigid the All-giving. Geraldus Cambrensis reports, in 1186, that there was at Kildare, an inviolable sanctuary with a perpetual ashless fire tended by twenty nuns of whom Brigid was one (19). Geoffrey Keating, in his *General History of Ireland*, lists fifteen holy women named Brigid, the most eminent of whom is "Bridget, the daughter of Dubhthach." (20) He confirms a genealogy for the Saint. And, Whitley Stokes, writing his preface to *Three Middle Irish Homilies*, sums up Brigidine *acta*:

> "Brigit was born at sunrise neither within nor without a house, was bathed in milk, her breath revives the dead, a house in which she is staying flames up to heaven, cow-dung blazes before her, oil is poured on her head; she is fed from the milk of a white red-eared cow; a fiery pillar rises over her head; sun rays support her wet cloak; she remains a virgin; and she one of the two mothers of Christ the Anointed." (21)

The Abbess-Saint still had a responsibility for tradition bearing (poetry), healing, and metalwork. The sanctuary at Kildare retained the eternal flame of a Brigid-Minerva cloister and was watched over by a score of chaste nuns resembling Vestal Virgins. The name *Cill-dara* suggests the substitution of a Christian oratory for a druidic site, a suggestion that is underscored by the geographical proximity of monastic settlement and pagan sanctuary. But, beyond these striking similarities, the goddess and saint share more than a name, they share an important maternal significance.

Like the Nun of Beare, the tutelary goddess of Leinster has been transformed into a tutelary saint of Leinster, and the mother of gods has become "the second mother of Christ," "the Mary of the Gael," and "the Mother of the High King of Heaven." There are frequent allusions to fertility and lactation,

(19) John T. McNeill, *The Celtic Churches: a History, A.D. 200 to 1200* (Chicago: University of Chicago Press, 1974), p. 80.

(20) Trans. Desmond O'Connor (Dublin: James Duffy, Sons, & Co., n.d.), p. 389.

(21) Quoted in Hyde, p. 161n.

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and Imbolc, the spring rite, has been appropriated as the feast day of the Christian Brigid. Moreover, pagan imagery associated with sexuality has been sublimated so that the saint now corresponds more closely to the Virgin-Mother of Christ.

The medieval hagiographers not only reiterate the extravagant miracles attributed to Brigid by Broccan, Cogitosus, and other early biographers, they add apocrypha derived from saga, Scriptural, and classical sources. Brigid, like Deirdre, is reportedly thrown from a cart and cuts her head on a stone; and, like Christ, she multiplies foodstuffs for distribution to the hungry and cures the lepers and the lame. (22) Her remains, once interred at Kildare, are said to rest with those of Patrick and Columcille in a common grave at Downpatrick. (23)

Brigid is the patroness of Ireland, but devotion to her extends throughout Celtica: in Scotland she is well known as St. Bride, and in Wales she is St. Ffraid. In England there are upwards of nineteen pre-Reformation dedications to her, most of them in the West-country. (24) Her feast day, on February 1, is specially observed in Ireland, Wales, Australia, and New Zealand. (25) Interestingly, the strength of the Christian Brigidine tradition has flourished among people of Celtic stock and in areas where the Celts and their descendants have settled in numbers.

Though it is difficult to discount the testimony of early historians and hagiographers, the evidence that they present is unconvincing. Historicity demands inquiry beyond hearsay and speculation. In Broccan's metrical life and Cogitosus' *Life*, there are no ascertainable facts or chronologies. Both writers are spiritual devotees, and Cogitosus has the added motivation of establishing a territorial jurisdiction for his monastery. Brigid is, in fact, associated with *two* sites in Leinster – Faughart in Co. Louth, where she is reputed to have been born and reared, and Kildare, where she is said to have established the house of learning. But Faughart, as a place of pilgrimage (a stream and holy well), conjures cult rituals that are clearly un-Christian and, outside of Cogitosus, Brigid's

(22) John Coulson, ed., *The Saints: a Concise Biographical Dictionary* (New York: Guild Press, 1958), p. 145.

(23) *Ibid.*

(24) Herbert Thurston, S. J., and Donald Attwater, eds., *Butler's Lives of the Saints*, Vol. 1 (New York: P. J. Kennedy & Sons, 1956), p. 229.

(25) *Ibid.*

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early association with the nunnery at Kildare is unsubstantiated. (26)

The geneaologies that link the Saint with the chieftain Dubhthach cannot be credited any more than other early Irish genealogies that harken back to mythological heroes and kings. The disinterment in the ninth century is explicable in light of Danish invasions, and reburial in a common grave with Patrick and Columcille implies sanctity by association, but contradicts Irish social and religious customs. What this accumulation of biographical data, confirmed by supernatural signs and supported by copious documentation over many centuries, serves to illustrate is a complicated conversion from myth and saga to pseudo-historical tradition. In effect, it shows how the Celtic religion was modified over time and space and how Christian monastics, unable to dispell the shadow of a vigorous matriarchal deity, grafted her name and functions on a saint who became mother and exemplar of the Irish.

It is altogether likely that there were Christian Brigids in fifth-century Ireland. Keating mentions no less than fifteen "religious women" of that name. It is, of course, possible that one or another of these women founded the community at Kildare. Certainly there is adequate proof that such an institution existed, that there were groups of pious Christian women, and that one group resided at Kildare. Still, the evidence indicates that the Brigid that has come down to us as a saint is the symbol of Celtic continuity and the euhemerization of an ancient goddess. An examination of the surviving Brigidine festivals and lore will further that judgment.

The Festivals and the Lore

In *The Festival of Lughnasa*, Maire MacNeill catalogues the pilgrimages, assemblies, rites, and lore associated with Lugh, the dominant Celtic god; but MacNeill's study is more than a compendium of folk practices and folk beliefs. (27) It posits the strength of pre-Christian traditions and offers a model for inquiry into the influences of pagan rituals on current devotional exercises.

Because Brigid has been afforded a primacy in the Irish

(26) Butler's *Lives*, p. 226.
(27) (London: Oxford University Press, 1962.)

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tradition, there are numerous folk customs and beliefs, deriving from antiquity, that attend her person and her feast. Seán O'Súilleabháin's *Nósanna agus Piseoga na nGael* lists some of these:

> Young boys (*Brídeoga*: "Biddies") went from door to door carrying a churndash dressed as a woman and asked for some gift. Rushes or straw were left outside the house on the Eve of the Feast, and at nightfall a young girl went out, brought the bundle to the door, and knocked, asking in the name of Brigid to be admitted. When this was done, crosses (of various designs and materials, according to different districts) were woven or otherwise made, to the accompaniment of a traditional prayer. A meal was then taken, and the crosses were placed both in the inner side of the thatched roof and in the outhouses to invoke protection for the family and livestock. . . . A girdle (*crios*) was also woven of straw or rushes that evening, and both the members of the family and the cows passed through it for protection against illness. A cloth, known as *brat Bhríde* (Brigid's cloak) was left in the open that night and was then preserved for the healing powers it was said to have acquired. Another ancient custom was the throwing of a sheaf of oats or a cake of bread against the doorstep that evening to "drive away hunger" and to ensure a supply of food for the family during the year. (28)

Though the Brigidine folk customs appear complicated, they provide another level of interpretation of the role of the goddess-saint.

Until recently the cult of Brigid survived reasonably well intact in Ireland, though there were regional variations in the customs described by Ó Súilleabháin. The *Brídeoga* certainly replaced female surrogates of the Saint, exemplary virgins of the town lands who often bore here name. The churndash, besides its obvious symbolic connection, served as the foundation for an effigy of Brigid that was carried in procession to welcoming households. Rushes that were brought in by the young girl (again, a Brigid) were usually spread beneath the festive table as a mat. There was an elaborate ritualistic entrance: the girl seeking admittance, knocked three times,

(28) (Dublin: At the Three Candles, Ltd., 1967), p. 62.

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each time repeating

> "Go down on your knees, do homage, and let Blessed Bridget enter the house."
>
> When this has been said for the third time, those inside respond, "Oh, come in, you are a hundred times welcome." (29)

An appropriate prayer of thanksgiving for health and safety to family and kine was afterward recited by the parents.

In some areas the rushes were then gathered up and woven into crosses, girdles, and into ties and spancels for cattle and sheep. The crosses [Illustration 2] might be blessed with holy water before being ceremoniously set in the thatch of the cottage or byre. Remnants of the rushes were afterward collected and made into a tick mattress for the Saint, while the rushtips furnished lighting. It was believed that the artifacts protected the inhabitants and their animals from natural calamities – particularly fire, storm, and lightning. Mattress, girdle, or the special piece of cloth, called a *brat Bhríde*, were believed to have exceptional curative powers, especially with respect to illnesses in childbirth and in countering barrenness.

The sheaf of oats or the cake of bread that was thrown against the door vanquished hunger, but a second cake was often placed outside the window as an oblation to the Saint or to provision a needy traveler. An abundance of fresh butter and milk also graced the *brídeóq* table. So, Brigid's functions in the folk tradition complement those of the antecedent goddess. The persistence of the spring rite, signaling, as it does, rebirth in the nature and new growth in the fields, certainly cannot be as recent as Christianity. Fertility and guardianship of the land were, after all, the domain of a Gaulish Brigid.

If the Celtic universe be directed by mysterious energies and the preservation of harmony in nature be man's first concern, there must be spells and charms and formulae. And, in the cyclical order, there must be oblations to restore fertility to the fields and promote sympathetic magic. It is inevitable that, in the course of centuries, religious symbolism will be dissipated; still, in the rituals associated with Brigid, there are vestiges of an ancient maternal deity who provides abundance, and who heals and protects.

(29) (Kevin Danaher, *The Year in Ireland* (Cork: The Mercier Press, 1972), p. 20.

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In addition to the folk customs and beliefs noted by Ó Súilleabháin, there are pilgrimages to holy wells, sacred streams, and ancient ruins to commemorate the Saint. The most impressive pilgrimage is that which leads to a shrine at Faughart in the northeast corner of Co. Louth, for it is there that the cult of Brigid flourishes to the present day. It is there that Brigid is thought to have been born and there that she is said to have consecrated her virginity to Christ, founded a convent, and erected a chapel.

In fact, there is at Faughart an ancient church ruin identified in the *Ordnance Survey Letters* (1836) as "Teampull Aird also (as) Teampull Brighde na hAirde Móire," as well as a Brigid's stone, probably the stanchion for one of the Irish high crosses. But, the Hill of Faughart has earlier prominence; in the vicinity there are megalithic tombs, souterrains, raths, and antiquarian artifacts. The place even takes its name from associations with Cuchulainn and Medb in the saga literature. (30) It would seem that, as the old order passed, this Christian community came to replace it, raised a cross, and constructed a temple of the new order. Colgan, writing in 1647, remarks that, while a monastery of canons once resided at Faughart, the place had been a parish church for nearly six centuries. (31)

Brigid is, of course, the patroness and heroine of Faughart. Material tokens of miraculous cures and mementos of favors received — bits of cloth, bandages, eye glasses, and rosary beads — adorn bushes around the outdoor shrine, and an elaborate web of legend substantiates the local progress of the Saint. Over the years references to area families have also crept into the reportage. The most popular account, however, concerns Brigid's flight from a determined suitor, during which she is said to have knelt near the bank of the stream and plucked out her eye to avoid being recognized. So credited is the incident that a curious collection of large stones situated near the stream mark every movement of the Saint. The "headstone," "hoofmark stone," "knee stone," "waist stone," and "eye stone" remain focal points of the pilgrimage and provide the faithful tangible evidence of the event.

(30) Diarmuid Mac Iomhair, "Townland Survey of County Louth," *County Louth Archaeological Journal*, 16:2 (1966), 120-21.

(31) Quoted in Diarmuid Mac Iomhair, "Townland Survey of County Louth," *County Louth Archaeological Journal*, 16:4 (1968), 255.

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The pilgrimages, which are undertaken twice yearly, on the first Sunday in February and the first Sunday in July, attract thousands of devotees. Since the turn of the century the severity of the asceticism has been modified dramatically; still, there is more than a suggestion of the past. The prescribed ablutions in the stream and the prayer-circuits round large stones and the ubiquity of antiquarian monuments hint at pre-Christian rituals. Faughart conjures an ambience of magic and druidism, and its topography insists on the continuity of Celticism.

Though the modern pilgrimage is documented as far back as the first half of the seventeenth century, there were interruptions during the latter half of the nineteenth century. But the Irish-language tradition survived in Faughart and private devotionalism continued. In 1903 a bone fragment reputed to have been taken from the skull of St. Brigid was brought from Lisbon , Portugal, and enshrined at the parish church of Faughart. At about this time there was also a revival of interest in the pilgrimage, and "elders" were called upon to reconstruct the order of the rubric. In July 1934, a new shrine, complete with Lourdes grotto, Calvary figures, and canopied altar, was erected.

The exercises of the revised pilgrimage call for special invocations, the recitation of the rosary, a sermon to suit the occasion, a litany, and benediction of the Blessed Sacrament. Celticism has apparently given way to Romanism at last. Still, there is a private rite that leads hundreds of the faithful to the stream and the big stones. Many pray their way around the stones and hang tokens on the bushes. After a millennium and a half the cult memory of stones and stream survives.

Conclusion

When the seventh-century lives of Brigid were written, the cult of a Celtic Brigid had not yet run its course. Attributes of the tutelary goddess of Leinster were therefore appropriated by the earliest biographers and grafted on Leinster's tutelary saint. The goddess of poetry, healing, and the metal arts thus became the Christian patroness of learning, healing, and domestic arts. Since the celibate monks could not transfer the strong sexual-maternal qualities of the Celtic Brigid to her Christian counterpart, they adapted: they virginized her, identified her with the

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Mother of Christ, and hailed her as "Protectress of Ireland."

Still, sexual-maternal aspects derived from the Celtic goddess have carried over. The spring-rite (Imbolc), St. Brigid's feast, is associated with lactation, and attendant folk beliefs continue to stress abundance of milk and milk products Moreover, the pilgrimage, suggestive of druidic ritual, celebrates a stream (symbolic of amniotic fluids) once sacred to a pre-Christian community.

Surely the scribes, in tampering with the mythology, have altered the character of the mother-goddess; but they have also preserved, in the Christian tradition, the only extant composite of a Celtic matriarch. Undoubtedly there were fifth-century Brigids who entered the contemplative life and were associated with the settlements at Faughart and Kildare, but the overwhelming evidence is that the Brigid of the "Roman Calendar" is essentially Celtic. Though there has been a syncretism of the pagan and Christian personalities, the mother-goddess of the Celts survives and, what is more, she still eludes the Vatican "saint-hunters."

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THE ETRUSCANS

MARIO CAPPIERI

Since it is my intention to discuss the physical anthropology of the Etruscans, I am omitting most historical and cultural data, but I think it is necessary to present a brief summary of such information in order to portray a clear picture of these peoples, not only as a racial entity, but also as an historically identifiable population.

The name Etruscans – in Italian *Etruschi* – derives from the Latin form *Etrusci*, although the Romans used the form *Tusci*, and, for the territory, the names *Etruria* and *Tuscia*. The last term was particularly common in the Early Middle Ages. The Etruscans were called *Turskum* by the Ombreans, and *Tyrrhenoi* or *Turshenoi* by the Greeks. They called themselves *Rasena*.

It is difficult to outline the extent of the Etruscan territory in the pre-Roman times. In my opinion, it was much less extensive than what is generally thought, because evidence of the Etruscan culture is found in the Po Valley and parts of central Italy.

In the pre-Roman epoch, the Etruscans had several colonies in the Po valley, which were later to become urban communities of *Gauls*, of Ombreans and of Euganeans. These colonies included *Manthya* → corresponding to Mantua or Mantova; *Felsina* → Bononia, Bologna; *Ateste* → Este; *Histria* → Adria; *Spina* (southward of Comacchio); and others. The colonies in Campania included *Capua* → S. Maria Capua Vetere; *Hyria* → Nola, and *Cuma*.

The Etruscan colonies in the Po Valley were not, in my opinion, urban communities or centers of demographic expansion, but rather trade cross-roads where able Etruscan merchants established themselves to practice their commercial activities. They bartered their manufactured products for the raw materials and the natural products offered by the rural populations of the Po.

The Problem of Etruscan Origins

The question of the origin of the Etruscans presents anthropologists with a problem which is not yet solved, and may never

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be. Several theories have been put forward to explain the Etruscan settlements in Italy. I reject, as unreal, the thesis which presumes an immigration of the Etruscans by land from the East. Against such a prospect, I would point out that the Etruscans have neither genetic nor somatic affinities with the populations of these areas. Besides, there is no cultural evidence to connect the Etruscans with the Near East.

I am inclined to search for a solution by the process of elimination. It would be generally agreed that the Etruscans were surely neither Corsicans, nor Sardinians, nor Celtiberians, nor Ligurians, nor Gauls. That being the case they are more likely an autochthonous group, indigenous to central and southern Italy, belonging, together with *Sicilians* and *Sardinians*, to the Mediterranean race.

Thus I see the Etruscans as the descendants of local groups of ancient people wholly indigenous to central Italy. There is no reason to suppose that their forebears did not evolve from the Upper Paleolithic population of the area.

The Etruscans as a Community

During the thirty centuries of their history, the Etruscans have retained a distinctive psychic and ethnic character. They formed a population considered by all coeval peoples to be wealthy, and regarded with high prestige. They were endowed with highly developed agricultural and animal breeding skill, and they operated many mines, from which they obtained raw materials for the manufacture of various products. As craftsmen, they were highly respected.

All these elements reflect an advanced culture which already illuminated Northern and Central Italy well before the Greeks instituted their colonies in Magna Graecia and Sicily. In the 1st millennium B.C., this Etruscan culture exerted a deep influence on the neighboring populations of the northern and central regions of the peninsula.

The social and political institutions of the Etruscans were very different from those we identify among other populations in Italy at the beginning of historical times. The Etruscans do not appear to have been divided into tribes, or stocks; instead they were organized in city-states or *lucomonies*, representing communities of an urban type which, with their adjacent rural populations, constituted politically independent,

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and somewhat isolated states. As a nation the Etruscans had no central authority nor any federal government.

As far as we know, these city-states were governed at the beginning by "principes," but from the beginning of the 5th century B.C., the *lucomonies* came to be governed by oligarchies which, by the end of the 5th century, might be regarded as aristocratic republics. We know that a league of twelve (later they were 15) *lucomonies* existed. The basis of this league was more social and religious in character than civil, political or military. The Etruscan colonies in Campania were also organized in a similar league.

Geographically the Etruscan territory was elongated in a north to south direction, and included the modern region of Tuscany, and part of the regions Umbria and Latium. It was bounded on the north-west by the Ligurian population, on the north-east by the Tuscan-Aemilian Apennines; to the west by the Tyrrhenian sea; and to the east and south by the Valley of the Tiber. It comprised 71% hilly territory with 19% mountains and a scanty 10% of plains. If we disregard the rather small companion colonies, it extended over about thirty thousand square kilometers, housing a population at the beginning of the 1st millennium B.C. of around half a million people.

The Latin names of the major Etruscan settlements beginning with the twelve city states of the league, are given below, with the Etruscan name included, where this is known.

Arretium = Arezzo,
Chair = Agylla = Caere = Cerveteri,
Chamars = Clevsim = Cleostma = Clusium = Chiusi,
Perusia = Perugia,
Popluna = Populonia,
Rosellae = Rusellae = Roselle,
Tarchuna = Tarquinii = Tarquinia,
Velathri = Volaterrae = Volterra,
Velch = Vulso = Vulci,
Vell = Veii = Veio,
Velzna = Volsinii Veteri = Bolsena,
Vetluna = Vatluna = Vetulonia,
Corito = Cortona,
Faesulae = Fiesole,
Julia obsequens = Pisa,

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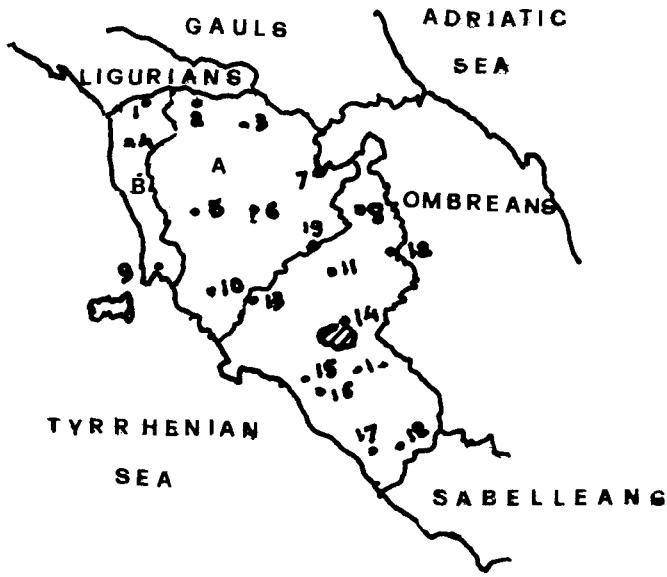

MAP I — The most important localities in Etruscan territory and division of the territory into the three somatic sub-groups: A — B — C

1. *Luca* = Lucca
2. *Pistoria* = Pistoia
3. *Faesulae* = Fiesole
4. *Julia obsequens* = Pisa
5. *Velathri* = Volaterrae = Volterra
6. *Saena* Etruriae = Sena Julia = Siena
7. *Arretium* = Arezzo
8. *Perusia* = Perugia
9. *Popluna* = Populonia
10. *Vetluna* = Vatluna = Vetulonia
11. *Corito* = Cortona
12. *Surrena* = Vicus Elbii = Viterbo
13. *Rusellae* = Roseelle
14. *Velzna* = Volsinii Veteri = Bolsena
15. *Velch* = Vulso = Vulci
16. *Tarchuna* = Tarquinii = Tarquinia
17. *Chair* = Agylla = Caere = Cerveteri
18. *Vell* = Veii = Veio
19. *Chamars*=Clevsim= Cleostma = Clusium=Chiusi

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Pistoria = Pistoia,
Saena Etruriae = Sena Julia = Siena,
Surrena = Vicus Elbii = Viterbo.

The Etruscans under Roman Domination

Between the beginning of the 4th and the first half of the 3rd centuries B.C. the Etruscan territory fell into the power of the Romans. The small, but bellicose Rome of the republican period began to expand her military power at an early date, and by the first half of the 3rd century the Romans had already penetrated deeply into the Etruscan territory. In 396 B.C. they conquered *Vell* (Veii = Veio) and in 353 *Chair* (Caere, Cerveteri). During the period 350 - 238, the Romans took possession of the whole territory on the north bank of the river Tiber, and in the year 238 they arrived on the banks of the river Arno in northern Etruria.

But the nature of the Roman domination of the Etruscan territories was quite different from that in the rest of the peninsula and outside Italy. The Etruscans kept their socio-political organization — their own customs, laws, religion, and also their language, which remained in use until the early years of the Empire. In Campania, the Romans occupied the Etruscan colonies which, from the beginning of the 5th century, had already fallen into the possession of the *Samnite* tribes. Capua was seized by the Romans in the year 343 B.C.

The Roman conquest of Etruria may be documented according to the following timetable, giving the years (B.C.) in which the Etruscan settlements are known to have fallen under Roman control.

396 - *Vell*,
353 - *Chair*,
350 - *Perusia*,
320 - *Arretium* and *Chamars*,
280 - *Tarchuna* and *Velch*,
250 - *Pistoria* and *Velathri*,
205 - *Popluna* and *Julia obsequens.*,

The Germanic Invasions

With the decline of Rome, the Etruscan homeland, like other parts of central and northern Italy, was conquered and settled by Germanic people, and the question must be asked, to what

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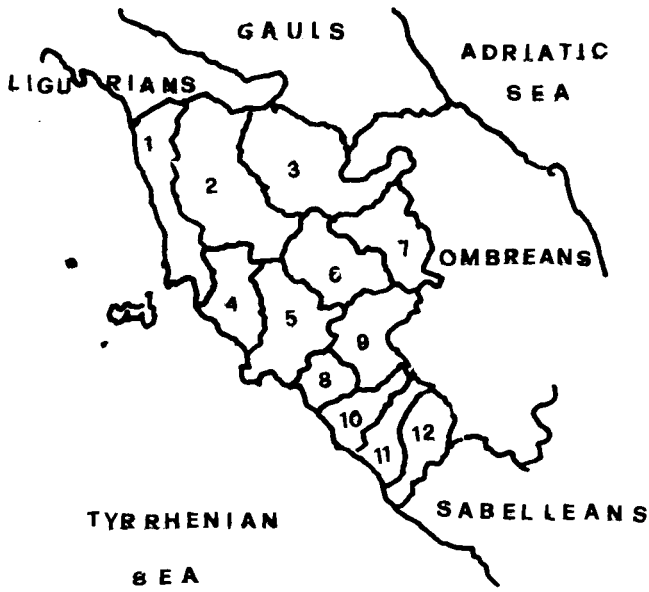

MAP II — Tentative identification of the boundaries of the 12 Etruscan city-states (Iucumonies)

1. *Popluna*
2. *Velathri*
3. *Arretium*
4. *Vetluna*
5. *Rusellae*
6. *Chamars*
7. *Perusia*
8. *Velch*
9. *Velzna*
10. *Tarchuna*
11. *Chair*
12. *Vell*

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extent did hybridization occur as a result of this invasion. In general, I believe that little genetic admixture resulted from the first brief incursions, but definitely some hybridization resulted from the Germanic settlements made during the three centuries of rule under the kingdoms of the Ostrogoths and the Lombards.

The incursions of the Germans into Italy corresponded with a period of economic chaos and substantial population losses. It is estimated that during this period the population of Italy declined by a third as a result of famines, epidemics, massacres and deportations of large numbers of people as slaves. These conditions are believed to have also resulted in a lowering of the birth rate, while the mortality rate and particularly infant mortality mounted to an abnormal level.

The period of the initial incursions lasted from 401 to 453 A.D. The invaders were variously of German, Scandinavian and Slavic origin, comprising small but highly militant bands of experienced warriors, whose aim was only plunder. Rome was twice sacked in 410 and in 455, and battles were constantly fought with the Byzantine troops which attempted to defend the Italian peninsula.

During this period the Etruscans suffered heavily because their cities were rich, their agriculture prosperous, and their animal breeding much admired — all elements which appealed strongly to the cupidity of the invaders.

But the Etruscans were to suffer more heavily during the second period of actual settlement (489-774), under the kingdoms, in succession, of the Goths and of the Langobards. The conquerors were few in number, and fought constantly with the Byzantines, but in accordance with their custom they took one third of the land which they conquered.

However, the conquerors were not peasants. They managed estates attended by slaves and, when necessary, by the peasants of the region who were considered serfs of the land. The Ostrogoth kingdom fell after the destruction of the Gothic army by the Byzantine army, itself largely comprising Germanic mercenaries, at the battle of Vesuvius (453). The kingdom of the Langobards fell in 774, after the rout of their army by the Francs at the battle of the Door of Susa.

The Langobard dominion over the Etruscans was severe. As the capital of the Langobard Duchy, Lucca became the capital

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town of the region. Etruria was often the scene of heavy fighting between Byzantines and Langobards, and the consequences were heavily felt by both the population and the territory of the Etruscans.

If we estimate the Germanic population of Etruria at this time to have averaged 250 thousand, or less, then based on contemporary reports, we may assume that only a small number of the Langobards cohabited with the Etruscans, and the index of hybridization would probably be in the region of a value of 5%, a level which would have affected the Etruscan stock only slightly. After the rout of the Langobards, much of the Germanic population of Etruria, flowed away northward, a part was enslaved by the Etruscans, and some may have been assimilated. The dukes and the chiefs of the towns became vassals of the king of the Francs.

Phenotypical Continuity of the Etruscans

It consequently seemed to me reasonable to hypothecate that the population of Etruria:

(1) represents a truly autochthonous population of each prehistoric origin;
(2) that this group forms one of the components of the Italic peoples;
(3) that it belongs to the Mediterranean Race;
(4) that it has a genetic and ethnical continuity in its biological patrimony;
(5) that, consequently, the somatic elements, though representing the influence of morphological evolution during a number of millennia must have possessed a distinctive evolutionary trend line which should be still visible.

In order to test this conclusion, I examined the few skeletal remains of the Neolithic and Bronze Ages found in the region of Etruria, and compared these with the skeletal material attributable to Etruscans of the 1st millennium B.C. The essential constants resulting from such study are given in table 3.

In my opinion, there is a trend line of continuity between the series of the Neolithic and Bronze Ages and the Etruscan material. The two series of skeletal remains are relatively homogeneous, and the values of the characters show little variations; in fact the index of total somatic homogeneity is

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TABLE 1 – AVERAGE OF SOME SOMATIC CHARACTERS OF THE ETRUSCAN POPULATION

Provincial populations	HEAD Cephalic index	HEIGHT Stature of military recruits 1860 mm	1972 mm	FACE long %	short %	prognatic %	flat %	front low %	front high %	mouth large %	mouth small %
Aretinis	83.9	1651	1713	3.8	8.5	2.3	1.0	3.0	14.9	19.1	14.2	11.5
Florentins	83.1	1656	1750	5.7	15.0	1.9	1.8	5.6	13.9	28.4	9.8	15.3
Grossetanis	83.0	1644	1720	4.6	19.5	2.5	1.4	3.0	18.6	31.0	8.8	19.9
Livornesis	79.6	1657	1730	4.4	24.2	2.0	3.4	4.2	14.3	27.0	15.0	16.4
Lucchesis	79.7	1669	1730	3.7	20.0	2.3	2.2	3.8	15.2	14.8	6.5	11.8
Peruginis	84.1	1642	1700	3.5	13.8	4.3	2.1	9.8	15.5	19.2	8.4	14.2
Pisanis	82.7	1656	1735	4.8	14.1	2.7	2.6	7.5	16.2	26.3	9.9	15.3
Pistoiesis	83.1	1667	1730	3.8	–	–	–	–	–	–	–	–
Romans	81.0	1643	1725	5.0	13.6	4.2	2.4	6.7	19.1	21.2	11.1	13.9
Senesis	83.8	1648	1720	4.4	18.0	2.7	1.4	6.1	14.3	23.8	6.4	15.6
Ternanis	84.5	1639	1705	4.0	–	–	–	–	–	–	–	–
Viterbesis	81.7	1645	1720	4.6	–	–	–	–	–	–	–	–
(A) Mean	82.5	1651	1723	4.4	16.3	2.8	2.1	5.5	15.8	23.4	10.0	14.9
SDs	1.7	9.8	13.5	0.6	4.5	0.9	0.9	2.3	1.9	5.2	3.0	2.5
±	0.33	1.91	2.63	0.02	1.01	0.20	0.21	0.52	0.43	1.17	0.67	0.56
CV	2.06	0.59	0.78	13.6	22.6	32.1	42.9	41.8	12.0	22.2	30.0	16.0

NOSE not aquiline %	aquiline %	height mm	width mm	nasal index	HAIR red %	blond %	black %	EYES blue %	grey %	black %	brown %	COMPLEXION (Livi's classification) blond %	brown %	rosy %
22.2	14.4	47.8	33.6	70.7	0.4	10.1	24.9	12.4	19.8	5.0	67.8	11.2	46.3	47.6
19.1	17.3	40.7	33.8	68.9	0.7	10.4	24.5	11.2	21.6	8.7	67.2	10.8	45.9	38.9
19.2	15.7	50.9	34.5	68.4	1.3	8.6	25.7	8.3	20.5	10.1	71.2	8.4	48.4	40.5
19.2	12.8	49.3	33.2	67.8	1.0	8.0	32.4	10.5	19.5	11.7	70.0	9.2	51.2	43.6
22.0	13.4	49.2	33.0	67.4	0.8	6.8	33.3	8.1	19.3	3.4	72.6	7.5	53.0	51.1
–	–	48.6	34.0	70.4	0.8	9.0	30.1	11.7	21.1	7.8	67.2	10.4	48.7	41.5
20.2	15.2	52.6	33.5	64.1	0.6	8.4	27.9	9.2	24.3	5.4	66.5	9.7	47.4	43.5
–	–	–	–	–	0.6	14.0	22.3	16.7	22.5	8.3	65.8	12.9	44.1	–
22.4	15.0	49.6	33.6	69.7	0.8	6.4	32.0	8.3	17.9	9.0	73.8	7.3	52.9	35.3
21.8	21.0	48.5	33.1	67.9	0.5	8.4	24.8	11.5	18.3	6.5	70.3	9.9	47.5	49.3
–	–	–	–	–	0.3	5.2	29.1	9.3	16.0	7.1	74.7	10.1	48.5	–
–	–	–	–	–	0.5	5.6	26.3	6.3	15.6	6.1	78.0	5.9	52.2	–
20.5	15.7	49.5	33.6	68.4	0.7	8.4	27.8	10.3	19.7	7.3	70.4	9.4	48.8	43.5
1.4	3.1	1.4	0.5	2.0	0.3	2.4	3.6	2.7	2.5	0.7	4.4	2.0	2.9	5.1
0.36	7.90	0.31	0.11	0.45	0.16	0.47	0.70	0.53	0.49	0.14	0.86	0.39	0.56	0.16
6.8	19.7	2.8	1.5	2.9	42.9	28.6	12.9	26.2	12.7	9.6	6.3	21.3	5.9	11.7

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2.7, for the former series, and 3.0, for the latter.

As I see, the morphological aspect of the formet remains does not contrast with that of the Etruscan remains, particularly in relation to the somatic elements of the face. The results of biometrical elaboration of data confirm my opinion, even when some statistical computation emphasizes the scarcity of the oldest skeletal remains.

For example, we know the importance of the N value, which is the number of items of the distribution. In the comparison of these two series, its weight is very relevant because, while the Neolithic and the Bronze Age set is very small, the Etruscan series provides more than a hundred skulls. We know that the value of the SD is strictly correlated to the number of items of the distribution polygon, as indicated by the equation $\sigma_n - \frac{\sigma}{N}$ Just to show practically this correlation and its power, I choose a character whose value is present in both the series of skeletal remains with the following parameters:

Neolithic series	N 3	SD 0.7
Etruscan remains	N 5	SD 1.9

Now, applying the mentioned equation to the Etruscan series, the SD of the Neolithic skulls should be 1.1, while it is actually 0.7 i.e. with an enormous better level of quality (64% more homogeneity than what we have calculated). Computing the Pearson's coefficient of variation to these two values, I found 0.896 for the Neolithic skulls and 2.53 for the Etruscan skulls.

I instituted a set of comparisons between the two series, computing the reciprocal differences of mean, for a certain number of characters. The result was that all the differences were "not significant."

It is my opinion that these two series are chronologically consequential, and each of them is in the same evolutionary trend line as the other or *vice versa*. These two series of remains show a mesocranic, orthocranic, achrocranic (with a narrow front), euryseme, mesoconcha, leptorrhine population.

This somatic aspect, passing through the evolution of several millennia, can be detected, even partially, in the morphological aspect of the living (with which I deal in the next section).

The Phenotype of the Living Etruscans

Elaborating Livi's data of the recruits of a century ago, I

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TABLE 2 – MEANS OF THE VALUES OF SOME SOMATIC CHARACTERS OF THE ETRUSCAN POPULATION DIVIDED IN ITS 12 CITY-STATES

CITY-STATES (Lucumonies)	CHARACTERS																
	Cephalic index	stature at recruits		secul. stat.	face		front		nose		black		Livi's type		rosy	Ind. som.
		1860	1972	incr.	long	short	low	high	aquil.	nasal index	hair	eyes	blond	brown	compl.	total homog.
		mm	mm	%	%	%	%	%	%	%	%	%	%	%	%	♂
Arretium	83.6	1652	1728	4.6	13.8	3.5	14.3	23.8	17.6	69.2	24.7	6.7	10.6	46.6	45.3	2.8
Chair	81.4	1644	1723	4.8	13.6	4.2	19.1	21.2	15.0	69.7	29.2	7.6	6.6	52.6	35.3	1.6
Chamars	84.0	1645	1710	4.0	15.9	3.5	15.3	21.5	21.8	69.2	27.5	7.2	10.2	48.1	45.4	2.3
Perusia	84.0	1647	1707	3.7	11.2	3.3	15.2	19.2	22.2	70.6	27.5	6.4	10.8	47.5	44.6	2.0
Popluna	79.7	1663	1730	4.1	22.1	2.2	14.9	20.9	19.2	67.6	32.9	7.6	8.4	52.1	47.4	2.1
Rusellae	83.0	1644	1720	4.6	19.5	2.5	18.6	31.0	19.2	68.4	25.7	10.1	8.4	48.4	40.5	–
Tarchuna	81.4	1644	1723	4.8	13.6	4.2	19.1	21.2	15.0	69.7	29.2	7.6	6.6	52.6	35.3	1.6
Velathri	82.5	1659	1733	4.5	16.8	2.7	14.9	23.3	16.7	67.1	26.6	6.5	10.2	47.6	45.7	2.4
Velch	81.7	1645	1720	4.6	–	–	–	–	–	–	26.3	6.8	5.9	52.2	–	–
Vell	81.4	1644	1723	4.8	13.6	4.2	19.1	21.2	15.0	69.7	29.2	7.6	6.6	52.6	35.3	1.6
Velzna	83.1	1642	1713	4.3	–	–	–	–	–	–	27.7	6.6	8.0	54.4	–	2.3
Vetluna	83.0	1644	1720	4.6	19.5	2.5	18.6	31.0	19.2	68.4	25.7	10.1	8.4	48.4	40.5	–
(A) Means	82.4	1648	1721	4.5	16.0	3.3	16.9	23.4	18.1	69.0	27.7	7.5	8.4	50.3	41.5	2.4
SDs	1.3	5.2	2.5	0.4	3.5	0.8	2.1	4.2	2.7	1.1	2.4	1.2	1.6	2.6	4.8	
±	0.25	1.01	0.49	0.08	0.75	0.17	0.08	0.90	0.58	0.23	0.47	0.23	0.31	0.51	1.02	

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obtained a good set of values, which I expose in table 1. A character is accentuated among the Etruscans: the aquiline nose whose mean value is 15.7%, value ranging from 17.3% of the Florentins to 21.0% of the Senesis. Other characters, particularly distinctive, are: high nose 49.5 mm, long face 16.3%, high front 23.4%, small mouth 14.9%, flattened face 5.5%, and slight facial prognathism 2.1%.

Etruscans with blond hair are 8.4%, but the deviation values are rather high as, for instance, 14.0 of the Pistoiesis, 10.4% of the Florentins, 10.1% of the Aretinis. In opposite position are the Ternanis with 5.2%.

The black hair (a "dominant" character) with a mean of 27.8%, with a low dispersion of items; the variation field is 11.0% (13.3-23.3). Blue eyes are 10.3% with high dispersal: 16.7% of the Pistoiesis, 6.3% of the Viterbesis. The black eyes (a "dominant" character, too) has a variation field of 8.3% (3.4-11.7) with a mean of 7.3%.

Livi, combining percentage values, on the one hand, fair or blue eyes and light or blond hair, and on the other hand, black eyes with black hair, has instituted two "types" called by him "blond" and "brown." The values for the Etruscans are, respectively, 9.4% and 48.8%. Very near to these averages are, for the "blonds" the Livornesis with 9.4%, and for the "browns" the Peruginis with 48.7%.

In order to estimate the actual value of the variability of such characters, I computed a set of Pearson's coefficients of variation, values which I have included in table 1. Just as examples, I illustrate some of them. The actual smallest variation is shown by the two values of the stature of 1860 and of 1972 with *VC* 0.59 and 0.78 respectively. These two characters are less variable than the cephalic index (*VC* 2.06).

As a synthetical representation of the Etruscan phenotype given by all the somatic values I have exposed, I assume that the Etruscans appear as mesocephalics, leptorrhines, with long face, high front, middle sized mouth, aquiline nose; they show a small rate of blond hair, a high rate of black hair and eyes, a rather high rate of blue eyes and a high rate of rosy complexion.

This picture is well differentiated from that shown by the other three racial groups – *Ligurian* – *Gallic* – *Ombrean* – with which the Etruscans have been in contact during several

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TABLE 3 – MEAN VALUES OF SOME CHARACTERS OF SKULLS OF THE NEOLITHIC/BRONZE AGES FOUND IN ETRURIA OF ETRUSCAN SKULLS OF THE 1st MILLENIUM B.C.

CHARACTERS (Martin's numbers)	SKULLS Neolithic/ Bronze Ages A	σ	Etruscans 1st millenium B. C. A	σ
1	179.2	1.1	185.3	7.3
8	144.5	3.7	141.4	5.0
9	96.9	0.9	94.5	3.2
10	120.0	1.0	118.6	6.3
17	135.0	2.9	129.0	1.4
20	118.3	7.5	113.3	6.4
45	126.0	4.0	126.0	0.0
48	63.5	4.9	63.5	3.5
I 1	78.1	0.7	75.1	1.9
I 2	74.6	1.1	70.5	0.8
I 3	96.8	3.1	93.9	1.3
I 4	61.5	2.0	60.3	1.1
I 5	78.5	3.0	80.1	1.7
I 12	81.1	1.2	79.4	2.3
I 39	49.3	1.9	48.4	0.0
I 42	78.5	3.1	84.2	10.3
I 48	45.6	2.7	47.0	3.0
Index of total somatic homogeity σ	2.7	–	3.3	–

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millennia, and by the *Euganeans*.

The Etruscans appear to have a longer face, a higher front, a nose more aquiline, and a complexion rosier than that of the *Ligurians* and the *Gauls*. In comparison with the *Ombreans* the Etruscans appear less brachycephalic, much taller, with longer and less orthognathous face, and much higher front; the rate is greater for the mouth, and for the higher and more aquiline nose. The Etruscans are blonder, have less black hair and eyes, and show a higher rate of blue eyes.

With the *Euganeans* the differences are notable. The *Euganeans* are taller and more brachycephalic, have higher front, longer face, higher nose (which is more aquiline) and are blonder as the rapport of 3 to 2).

The Three Somatic Varieties of the Etruscans

The indices of variation of the characters of the Etruscans do not evince a good homogeneity. In my opinion, this is only apparent. In fact, the values I have computed result from the elaboration of all the data relative to the entire regional population, including those pertaining to the population of the peripheral regions in which a manifest racial cline with other racial groups existed.

I studied the problem and analyzed the differential values. I am quite sure that I could determine an actual center as a barycentre of the Etruscan racial entity. In such an analysis I could determine three sub-groups or varieties of the Etruscan population which I have called Sub-groups A, B, and C.

The sub-group A shows the most evident somatic qualities of the Etruscans which represent the essential ethnical and cultural characteristics for the racial expansion. It is composed, of the provincial populations Aretinis, Grossetanis, Florentins, Pisanis, Pistoiesis, and Senesis.

I identified the second sub-group (B) along the coast of the Tyrrhenian Sea, and ascribe this the provincial populations of Livornesis and Lucchesis.

The third sub-group (C) includes the provincial populations Peruginis, Viterbesis, Ternanis, Romans, Senesis, and Grossetanis. This sub-group occupies the peripheral regions of the Etruscan territory, particularly those along the Tiber. I have indicated in table 4 the essential constants of these sub-groups, and in map I the presumable division of the territory.

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TABLE 4 – AVERAGES AND SDs OF SOME SOMATIC CHARACTERS OF THE THREE SUB-GROUPS OF THE ETRUSCAN POPULATION (RECRUITS OF 1860)

CHARACTERS	A		B		C	
	A	SD	A	SD	A	SD
Cephalic index	83.1	0.4	79.7	0.0	83.0	1.4
Recruits stature of 1860	1655	8.2	1663	5.7	1644	3.0
do 1972	1728	13.4	1730	0.0	1715	10.0
Secular increase of the stature in %	4.5	0.5	4.1	0.5	4.4	0.6
Face: long %	15.0	4.3	17.4	10.0	16.2	3.0
short %	2.4	0.3	1.8	0.3	3.4	1.0
prognatic %	1.6	0.6	2.5	1.3	1.8	0.5
orthognathic %	5.0	2.0	3.4	1.2	6.4	2.8
Front: low %	15.5	1.9	12.9	1.9	16.8	2.4
high %	25.7	3.3	25.9	1.6	23.8	5.1
Mouth: large %	9.8	2.8	10.8	6.0	8.7	1.9
small %	15.5	3.0	14.1	3.3	15.9	2.8
Nose: not aquiline %	20.5	1.4	20.6	2.0	20.5	1.8
aquiline %	17.3	2.7	13.1	0.9	18.4	3.8
height mm	49.9	1.9	49.3	0.1	49.4	1.1
width mm	33.7	0.5	33.1	0.1	33.8	0.6
nasal index	68.0	2.4	67.6	0.3	69.1	1.2
Hair: red %	0.7	0.3	0.9	0.1	0.7	0.3
blond %	10.0	2.2	7.4	0.8	7.2	1.5
black %	24.5	2.2	27.9	6.4	28.0	2.8
Eyes: blue %	11.6	2.9	9.3	1.6	9.2	2.1
grey %	21.2	2.0	19.4	0.1	18.2	2.3
black %	7.3	2.0	7.6	5.9	7.8	2.2
brown %	68.1	2.1	71.0	1.4	72.5	3.9
Livi's type: blond %	10.5	1.5	8.4	1.2	8.7	1.8
brown %	46.6	1.5	52.1	1.3	49.7	2.6
Rosy complexion %	44.0	3.7	47.4	5.3	41.7	5.8
Index of total somatic homogeneity σ	2.6	–	2.2	–	2.5	–

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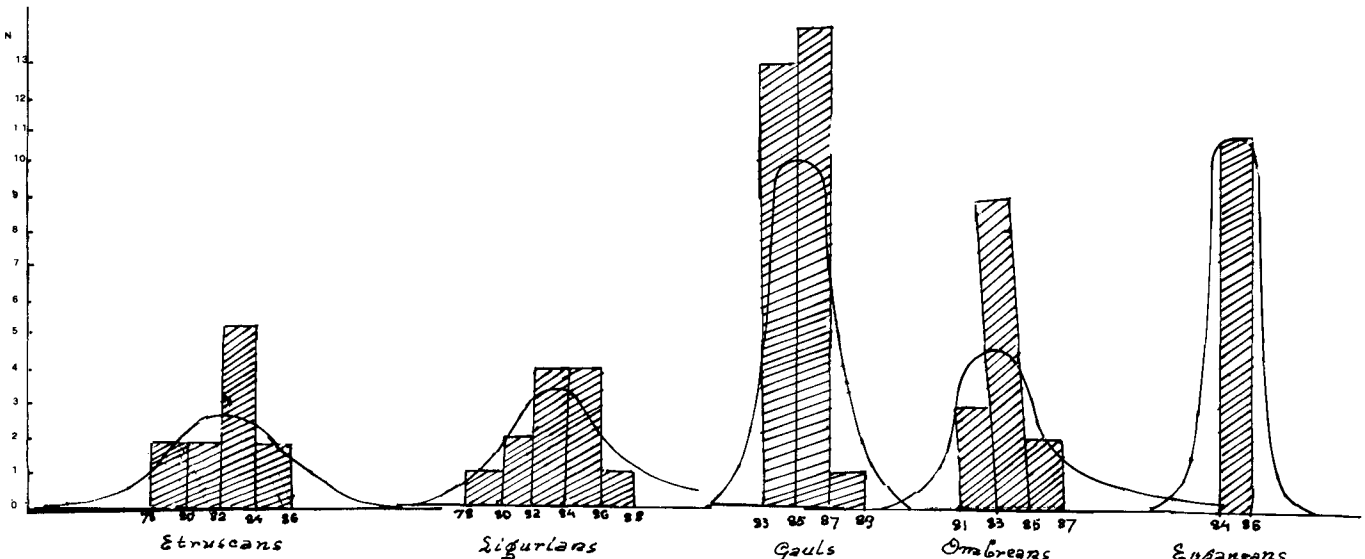

GRAPH A — skew curves representing the polygon of frequencies of the cephalic index for major ethnic groups contributing to the population of the peninsula

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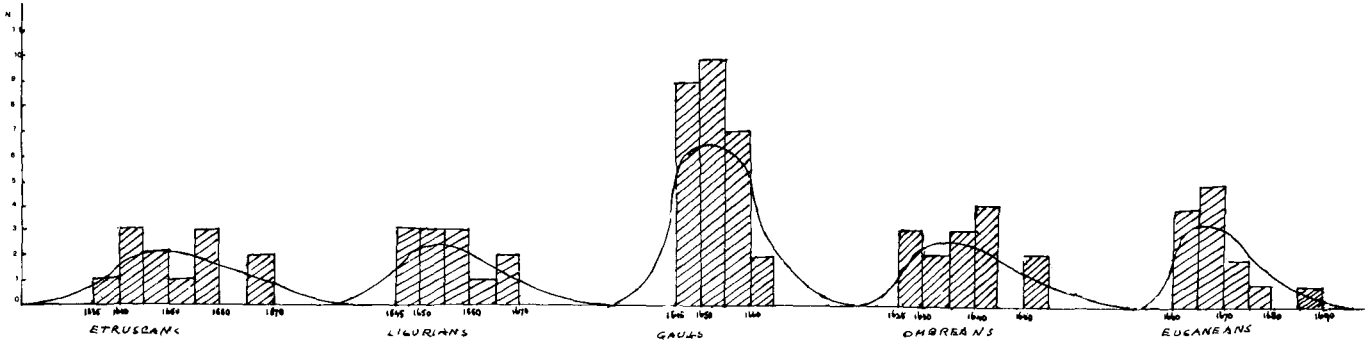

GRAPH B – skew curves representing the polygon of frequencies of the stature of the recruits of 1860 for some racial groups of the population of the peninsula

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Rather notable differences are shown in the comparison of the values of the three sub-groups, but the range of the differences, as well as the dispersion values, fell within the limits of the normal distribution. The A sub-group shows itself blonder and less brown than the average of the whole population and its cephalic index is a little more brachy. Some characters show values of percentage higher than the mean, as the rosy complexion, blue eyes, high front, aquiline nose, prognatic face – Livi's blond type. The stature is a bit higher than the average. The B sub-group distinguishes itself for a lower cephalic index and for the stature whose mean is 12 mm higher than that of the other two sub-groups.

The third sub-group (C) when compared with the other two, shows a lower stature, a nasal index approaching the platyrrhine values, the highest rate of black eyes and hair and Livi's brown type.

I computed the reciprocal differences of means for a set of characters, between, in succession, the three sub-groups employing the methodology of *Student's t* and keeping the limit of the "*significance*" at *P* 0.05. I ascertained that most of the differences fell within the limits of the polygon of frequencies distribution. The results were satisfactory and confirmed my system. The differences were, following the various characters, "*not significant*" from 78% to 89%.

Also the values of the total somatic homogeneity of each sub-group were satisfactory; for A was σ 2.6, for B σ 2.2, for C σ 2.2. The average – σ 2.3 – is even better than that shown by the whole Etruscan population: σ 3.0.

The Etruscan City-States (Lucumonies)

Information about the various *lucomonies* is scarce and uncertain. We assume that there were twelve (later there were fifteen). I tried to outline in map II their presumed territories, and list below the Etruscan, Latin and Italian denominations together with a concise geographical indication on their position. I have added the names of the provincial populations which, in my opinion, inhabit the territory of each city-state.

(1) *Arretium* = Arezzo; a city which is today the main center of the province of the same name. Its population derives mainly from the Aretinis, Florentins, and Senesis;

(2) *Velzna* = Volsinii Veteres = Bolsena, a small town situated

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on the northern bank of the lake of Bolsena to the south of Mts Volsini. Its population derives mainly from the Ternanis and Viterbesis;

(3) *Chair* = Caere = Cerveteri, a large village situated between the lake of Bracciano and the small town of Ladispoli, at about 6 km from the Tyrrhenian coast. Its population derives mainly from Romans and Viterbesis;

(4) *Chamars* = Clovaim = Cleosuma = Clusium = Chiusi, a town on the railway line Arezzo-Orvieto. Its inhabitants derive mainly from the provincial populations of the Peruginis and Senesis;

(5) *Perusia* = Perugia, the main town of the province of the same name and the capital of Umbria. Its inhabitants derive mainly from the Aretinis and Peruginis.

(6) *Popluna* = Populonia, a village of the Piombino promontory, situated on the Tyrrhenian coast of Mt. Massoncello. Its inhabitants derive from the provincial populations Livornesis and Lucchesis.

(7) *Rusellae* = Rosello = Roselle, a village situated between Mt. Leone and the river Ombrone, to the north of Grosseto. It is inhabited mainly by Grossetanis.

(8) *Tarchuna* = Tarquinii = Tarquinia; a small town in the valley of river Marta, about 5km from the Tyrrhenian coast. Its inhabitants are mainly derived from Romans and Viterbesis.

(9) *Vell* = Veii = Veio, a village situated in the so-called "Roman country," between Rome and the lake of Bracciano. Its inhabitants are also mainly derived from Romans and Viterbesis;

(10) *Vetluna* = Vatluna = Vetulonia, a village situated on the Tyrrhenian coast to the north of the river Brema, and about 5km from its right bank. It is inhabited mainly by descendants of the Grossetanis;

(11) *Velathri* = *Telathri* = Volaterrae = Volterra: a city located between Florence and Grosseto. Its inhabitants derive from the provincial populations of Florentins, Lucchesis, Pisanis, Pistoeisis, and Senesis;

(12) *Velch* = Vulso = Vulci, a village situated in the valley of the river Flora, at about 13km from the Tyrrhenian coast. Its inhabitants are mainly of Viterbesis origin.

I have applied the provincial values of various characters of these city-states, obtaining a set of frequencies that I have

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arranged in a series whose constants represent the Etruscan population distinct in its various component *lucumonies*. This is shown in Table 2. The value of the index of somatic total homogeneity (σ 2.4) is very satisfactory and substantiates, if only partially, my tentative systemics of the *lucomonies*. This induces me to conclude that the Etruscans still form an isolated ethnic population divided into 12 isolated groups.

This expression is demonstrated in biometric terms as "intra-*lucumonies* somatic homogeneity σ 2.4" and "inter-*lucumonies* somatic homogeneity σ 3.0." I tested this expression by the analysis of variance and obtained a confirming result.

Certain of the 12 *lucumonies* may be said to reveal the most representative characteristics of the Etruscan population and thus reflect its somatic barycentre. By comparing this date with that obtained when I classified the population into three sub-groups (A), (B) and (C), I concluded that this somatic bary-centre is located in the area covered by the following *lucu-monies*: the *Arretium, Chamars, Vetluna*, and *Velathri*. This complex seems to be closely correlated to the subgroup (A). The following table compares the characteristics of sub-group (A) with those of these four *lucumonies*.

Characters	Comparison of the mean values Sub-group A	 Complex of 4 *lucumonies*
Cephalic index	83.3	83.1
Stature of the recruits (1860 A.D.)	1650	1655
Nasal index	68.5	68.0
Long visage %	16.5	15.0
High Front %	24.9	25.7
Black Hair %	26.1	24.5
Black eyes %	7.6	7.3
Rosy complexion %	44.2	44.0

The correlation between these two sets is remarkably high. In order to obtain statistical confirmation of the above data, I computed 172 reciprocal differences of means for a set of somatic characters of the various city-states. The differences were 92.4% "not significant" and the level of their mean was *P* 0.42, a very satisfactory value.

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FAMILY AND SOCIAL STRUCTURE IN EARLY ROME

JOHN W. RICHARDS

Philologists tells us that the Italic languages, to which Latin belongs, may with Osco-Umbrian be closer to the Celtic tongues than to any other major Indo-European group. This would be easy to understand, in so far as the ancestors of the Italic peoples appear to have entered Italy from the north, and to have dwelt adjacent to the Celts. Later, as we know, the Celts pressed the Italic peoples severely from northern Italy – Cisalpine Gaul – before victory finally passed to the Romans. Trager and Smith believe that the Italic and other southern European "Indo-European" languages became separated from Germanic, Baltic and Slavic as early as 1800 or 1500 B.C. (1953: p. 297). If this estimate is correct the separation from proto-Celtic must have been after 1500 B.C.

Archaeologically there is now little doubt that the Latins derived from the *terramaricoli* peasant farmers, via the Iron age Villanovians. Childe states that "we may call the northern Villanovians Umbrians; the southern ones, differentiated from the former by minor peculiarities, Latins." (Childe, 1930: p. 202). There is also a distinct similarity between the layout of the *terramaricoli* villages and the Roman military camps of later centuries.

The substantial antiquity of pre-urban Rome, as an essentially Indo-European society, has recently been emphasized by E. Gjerstad (1961: p. 1) who declares that: "the pre-urban epoch of Rome has so far been extended into the first half of the second millenium B.C. Another thing that becomes increasingly clear is the fact that the early history of Rome forms an integral part of that of Latium."

Social Organization

Early Roman society seems to have been tribal in organization, and the Latin language was essentially "the language not of a cultured urban class but of an aristocracy of skilled peasants" (Bloch, 1960: p. 113). Mommsen describes the social organization of the Latin tribes as being classically Indo-

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European, based on clans, each with its own settlement or *vicus*, organized in a *pagus*, or canton – a collection of villages. "All these cantons" he continues,

> were in primitive times politically sovereign, and each of them was governed by its prince with the co-operation of the council of elders and the assembly of warriors. Nevertheless the feeling of fellowship based on community of descent and of language not only pervaded the whole of them, but manifested itself in an important religious and political institution – the perpetual league of the collective Latin cantons. . . . The later communion of legal rights and, in some sense, of marriage that subsisted among the Latin communities may perhaps be regarded as an integral part of the primitive law of the league, so that any Latin man could beget lawful children with any Latin woman and acquire landed property and carry on trade in any part of Latium. (Mommsen, 1908: pp. 49-51.)

We may justifiably assume that the early Latin (pre-Roman) social system was at a tribal stage of development, and although the legendary Romulus is said by Livy to have maintained a *comitatus* or body of "companions" (knights or *equites*) of three hundred men, military service without pay was obligatory upon all citizens between the ages of 17 and 45, each man being expected to find his own equipment. Thus the permanent standing army of knights attached to the royal court could be reinforced in time of war by the entire body of adult males. "It is no accident, we may be sure, that the term *populus* is cognate with *populare* meaning "to lay waste" (Toutain 1951: p. 268).

Ancient Role of Kings

The only legends which survived from the regal period have been heavily coloured by the conditions which subsisted during the reign of the last three kings – all Etruscans. However, it is believed that the Roman kings were elected – the first Tarquin also reputedly being elected – by the *populus*, although always from the royal family. Following the Etruscan victory, it is clear that the alien Tarquins could not have held a sacral Latin kingship except by force, and as the Tarquins appear to have regarded the state largely as their personal property, their election was perhaps more of a formality than a truly representative act. The fact that the Tarquins were eventually

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driven out implies that their attitude to this matter did not coincide with the views of their subjects.

As in pre-urban Latium, the Roman kings were aided by a senate or council of elders whose members were nominated by the king, although originally they may have been clan chiefs. We are tempted, therefore, to see the members of the senate as the king's "chosen companions" or "friends," and, bearing in mind the band of *equites* or knights who served the king, it would appear that the earlier tribal order had already given way to a "heroic society" in which the nobility was drawn not from the clan system but from amongst those of the comitatus who best served the king in times of war and peace.

Prior to the introduction of the Twelve Tables, some fifty years after the expulsion of the kings, there was presumably no written law, and the decisions of the kings were guided only by *mos* or custom, and *fas* or 'divine law.' On the basis of *mos* and *fas*, civil justice (*ius*) rested. Mommsen likened the power of the king to that of a *pater familias*, in that he was entitled but not required to take counsel of the senate, which only met when convened by him, and the king was expected to refer novel decisions to an assembly of the people for their approval (*rogatio*). We also hear that kings permitted those sentenced to the death penalty to appeal to the *comitia* cureatae – which was a tribal or gentile assembly, as did the Hittite kings. The early development of civic punishment in Rome, and disappearance of the blood feud, is another resemblance to Hittite history, although in Rome only the *pater familias* (not his entire kindred) were held responsible for offenses by the member of a family. While the Roman family organization was exceptionally strong, at least among the upper strata of society during the earlier Republican period, and *pietas* prevented deeds harmful to either *familia* or *gens*, there is virtually no surviving trace of the blood-feud. Doubtless the sack of Republican Rome by the Gauls may have destroyed any documentary evidence, and the tyranny of the Tarquins, which undoubtedly reduced the power of the early *gentes* and *curiae* – described by Heitland as phratry-like organizations based on kinship (1928: pp. 38-66) – introduced more advanced legal concepts involving punishments by the state in place of the more ancient Indo-European feuding-tradition. H. J. Rose, however, claims that a fragment of the Twelve

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Tables does indicate that the blood-feud had existed in earlier times (Rose, 1926: p. 194).

The legendary decision of the Sabines and Romans to unite in three tribes, following the abduction of the Sabine women – as quoted by Cicero – is remarkable in that we find the same threefold group of tribes among the Achaeans. This is a reflection of the same threefold pattern to be seen among the early Persians as well as in the three ridings of English Danelaw. In constitutional matters the Romans frequently used the terms *tribuere* ('to divide into three') and *tribus* (literally 'a third') in the generic sense 'to divide', as though a threefold division were a 'natural' device. (Mommsen, 1908: p. 54). In ritual, too, the Vestal Virgins, Salii and Augurs are all divisible by three, and the widespread significance of the figure 'three' among Indo-European or Aryan peoples has been printed out by Scott Littleton (1966).

The State "Hearth Fire"

The Romans clearly thought of their state as an enlarged family or household with a reality and existence of its own, superior to that of any individual member, and it was for this reason that the hall of the *rex* or sacrifice-supervising king was always close to the blazing hearth fire of the nation – the residence of the *Vesta* and *Penates* of the family-state or community-household, seen by Mommsen as "visible indications of that supreme household which included all Rome." (Mommsen, 1908: p. 81). The misuse of authority by the Tarquins was thus the occasion for a rejection of the heroic system, which concentrated power in the royal household, in favour of preserving the idea of the family-state, against which the Tarquins had offended, and their expulsion changed Roman history. So deep was the animosity of the Romans to the seemingly tyrannical behaviour of the Tarquin kings, who may have endeavoured to play the lower classes against the landowning families who provided Rome's mounted equites, that the sacred kingship – possibly already broken in spirit by intruder kings not of the ancient line – was abolished following the expulsion of the Tarquins and replaced by an era of patrician rule.

The circumstances under which the rebel nobility chose a 'patrician' form of social organization in preference to an

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'heroic' monarchical system were thus unusual. The charismatic power of monarchies is vested in the time-honoured antiquity of their lineage and the magic of the unbroken chain of power and of proven success reaching into the mists of tribal antiquity. Break the chain, as the intrusive monarchs did, and the magic was gone. For the Romans there was no longer any unbroken line of sacral kings, and after three generations, kingship had come to represent alien domination and exploitation; an affront to tribal and national dignity. Thus the expulsion of the Etruscan monarchs in the year 509 was seen as an end of *dominatio* and *servitus*, rather than as a rupture in the fabric of tribal society. Thereafter the word king was carefully avoided, but the concept of the family-state – its traditions, authority and power being a sacred trust to be preserved intact by the living members – did not die.

When the family-state abandoned the idea of life-magistrates, the senate, which had become depleted under the Etruscans, was made up to its proper strength of three hundred members. Heitland believes that these were all patricians (1923, p. 64), and that plebeian families only gained membership once the struggle of the Orders was over. In place of the life-magistrate or king, two magistrates were installed, holding office for one year only, and theoretically sharing the full *imperium* or trusteeship formerly vested in the king. There was no rupture in the Roman philosophy of the family state, but the change proved to be fateful. Thenceforth, there would be no concentration of power in a single household; the nation was still seen as an enlarged family, an association of kindred *gentes*. There no longer being a royal lineage to assume the obligations of government, the heads of patrician families had to do this, and the result was a republican oligarchy remarkably similar to that which reappeared among the Venetians nearly two millenia later.

This stood in sharp contrast to the 'heroic' societies of her Celtic and Teutonic neighbours, and the oligarchy of patrician families held sway until further changes ultimately destroyed the strength of the family system in private life, and consequently destroyed the psychological foundation on which the Roman Republic had been built.

Halliday declares that the foundation of the Roman republic was "the outcome of an aristocratic revolution. It was not

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democratic in nature and never developed into a democracy" (Halliday, 1967: p. 151). Ehrenberg confirms that it was "the heads of the small patrician families who had served under the kings" who were responsible for the expulsion of the Etruscans, and describes them as "true *patres* of the state" (Ehrenberg, 1964: p. 78). Who were these patricians? Professor Ridgeway maintained that the religion of Numa, the patrician *confarreatio* marriage ritual, and the *agnatio* were all Indo-European Sabine traditions and that the patricians were of Sabine stock – the plebeians representing neighboring peoples of Indo-European Latin culture who were steadily absorbed during the period of Roman expansion.

Here we see the stratification which can develop between clans as a result of an emphasis upon the significance of connubium and marriage ties as a means to preserving social position and a generally rank-conscious outlook. The fact that the Romans are more inclined to place weight upon unilineal descent than the Teutons, for example, may well reflect itself in the fact that the Romans saw fit to establish an equality between the aristocratic families. Abandoning their kings they developed a patrician oligarchy similar in some respects to that of Sparta, but different from that of Sparta in that, as Mommsen has so correctly pointed out: "in Italy we do not meet with any race of earlier settlers that had become subject to the Latin immigrants." They had no conquered race to deal with, and, therefore, no such condition of things as that which gave rise to the Indian caste system; to the racial consciousness of the nobility of Thessaly, Sparta and to a lesser extent of Hellas generally; and probably also to the Germanic distinctions of rank (Mommsen, 1908; page 89).

Patricians and Plebeians

Unlike so many Indo-European peoples, the early history of the Romans is therefore marked by an absence of any subjugated peoples of contrasting race and culture. In these circumstances, Romans found no difficulty in increasing the number of their tribes by admitting neighbouring 'Latins' as freemen, although not of the same status.

Although, as Halliday points out, it is technically true that the plebeians were "unable owing to the impurity of their descent to obtain full citizenship" (Halliday, 1967, p. 152),

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the absence of obvious physical contrasts prevented any racist attitudes from developing as in Greece and India, although the patrician family in Rome did practise a caste-like exclusiveness. Without any basic racial philosophy, however, the patricians eventually opened their ranks to plebeians of ability, and the ascriptive aristocracy of the earlier republic eventually gave way once more to a "nobility of service" (Ehrenberg, 1964: p. 78).

The early history of Rome thus reflects the attempt of 'full-born' patrician families to retain their wealth, power and privileges in the face of a massive challenge from the plebeians.

The rise of the plebeian class, who were essentially external to the closed Indo-European tripartite occupational status, system of warriors, priests and land-owning farmers, and therefore were without rights, began with the 'reforms' of the Etruscan king Servius. Rome under Etruscan rule was Rome under alien, non-Indo-European magistrates who attempted to introduce a more suppressive concept of kingship than Indo-European tradition could comprehend. At the same time, the warrior-nobility appear to have revolted against the attempts of the Etruscan kings to subvert the ancient Latin traditions by extending political recognition to the plebs, and such dramatic instances of oppression as Lucretius' alleged rape of a married noblewoman – behaviour which would hardly be expected of a charismatic tribal chief. While it has been argued that the Servian reforms gave the plebs responsibilities without real rights, the existence of social unrest at the higher levels is clear, and a consciousness that Etruscan ways were contrary to the Latin *mores* would create insurmountable tensions in a society in which custom and religion were basic to the framework of social and political organization.

The strong family loyalties of the Patricians may have been early lost among the plebians, and certainly their marriage customs, as we shall see, were not those of an Indo-European society. The decay of the system is largely to be associated, then, with the rise to power of the plebs, many of the old patrician families retaining their outlook even after their power had waned, and their numbers had been exhausted by constant conflicts such as the Punic Wars. The *comitia curae* was originally a clan or lineage organization, but the traditional importance of the army (which among the Teutons was in fact

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the assembly of the people) led to the existence among the Romans of a separate *comitia centuriatae*, and it was in this organization that the plebs were first recognized.

Bloch ascribes the recognition of the plebs to a change in the tactics of warfare (1960, p. 150). Around this time cavalry gave way to the drilled phalanx of infantry men. Since it was the patrician class who served as mounted knights or cavalry, the new Greek styles of foot combat, and the frequency of the local wars in which the Romans found themselves engaged, made the free plebs an essential element in Roman military organization. The concessions to the plebs must be seen in this light; the first of which occurred when the plebs were permitted to leave their farms and take up residence in the city, something which the Spartans (who used the Laconian equivalent of the plebs — the Perioiki — as light-armed infantry) never permitted.

Republican Roman patrician society, on the other hand, never denied the concept of *imperium*, of the sacred nature of the trust, but widened the number of families from which a candidate might be elected to the office of 'magistrate' and also — the crucial factor — made the office subject to annual revision, so as to avoid the embarrassment of having to depose an unpopular or ineffective magistrate.

Patrician society was thus in no way ideologically opposed to the idea of the family-state, or tribal trusteeship, but merely refused to see outstanding charisma in any one noble family. Whoever was elected to the office of magistrate inherited all the *imperium* of that office for the period of one year. What he did not lay claim to was the personal magical charisma which had belonged to the royal family and which had originally been the justification for localising the office within a single household. The religious duties of the Roman kings were not discontinued but were assumed by an official of priestly background. If anything, a new emphasis was placed upon national rituals and national religion. After the kings were deposed, the national cult could be seen clearly as a communal ritual no longer associated in any way with a single household or with the personal cult of the ancestors of the royal lineage.

With the abolition of the monarchy, therefore, there was no attempt to introduce democracy or to see the state in any way other than as an enlarged family or nation-household. The

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king or 'life magistrate' was replaced by two temporary or rotating magistrates who shared the political authority or *imperium* of a king so that they were not in any way subordinate to the senate or council of elders – and, indeed, the senate could only meet when convened by them. The people, gathering together in formal assemblies, were confirmed in their right to approve or reject proposed decisions (*rogatio*). The senate, itself, could only advise and could not theoretically overrule the magistrates.

What was to give the senate power in the long term, however, was the fact that the magistrates were subject to annual election. Since the senators held office for life, unless excluded for immorality, while the magistrates held office for one year only, the prestige of the senate was naturally enhanced by the superior experience and continuity of service of its members. Even more significant was the vital *interregnum*, between the retirement of one magistrate and the instalment of his successor, when all responsibilities devolved upon the senate. These two factors combined to give the senate a position of great influence which was only counterbalanced by the subsequent appointment of tribunes. Despite the maze of assemblies, council tribunes and consuls, the influence of the patrician families remained dominant for many generations. Some of these *gentes* were notorious for the consistency of character and behavior of their members through the generations, expressing a striking continuity both genetically and, more important, culturally, thus creating the impression of distinctive 'family' personalities!

Patrician Family System

In early monarchical and republican Rome, and among the patrician class until much later, family life was centred around the *familia* , or household, representing an extended family. Within the household, the nuclear family was of relatively minor significance. This household comprised *pater familias*, and his wife *mater familias*, who retained her own family name (patronymic) as married women do in Iceland to this day, but who from the time of marriage came under the *manus*, protection, or 'hand' of her husband. The pater familias exercised full control over the property of the family, being in the eyes of the law the only person who was *sui juris*. In other words he

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exercised *patria potestas* over his descendants, both male and female, up to the time, at least, that he might give his daughter in marriage whereupon she was formally emancipated from his control. A son, on acquiring a wife, remained under the same authority. The sons' children and their wives were similarly under his authority and protection. None of the means of production of wealth were regarded as anything but the property of the *pater familias* as the sole legal representative of the family or household, except where the *pater familias* chose to allow the individual certain personal property rights, which property was then styled *peculiam*.

Households would tend to break up on the death of the father, when the sons would be emancipated and each became a *pater familias* himself, their children passing from the *potestas* of their grandfather to that of their father. Sons of the deceased *pater familias* who were under age would be placed under the care of a guardian, usually a close relative, always from the same wider circle of kinfolk, known as the *gens*.

If he wished, a *pater familias* might emancipate his sons before his death, permitting them to set up their own households as fully legal persons, and it is important to note that the sole decision here rested upon the individual *pater familias*, acting in accordance with prescribed rules, and not with the state in any way. The state, in other words, did not say who its members were, nor who should be free or unfree.

The word *familia* (Umbrian *famelius* cognate with Sanskrit *dhaman* or 'abode', Oscian *faamat*) was used in the sense of 'household' and included not only the housefather and his wife, sons and unmarried daughters, but also his sons' wives, their children and any free or unfree dependents. The latter came under the *dominica potestas* of the *pater familias*.

As with the Teutons, Greeks and other Indo-European peoples, birth did not automatically entitle a child to admission to the *familia* and *gens*. The new-born infant must first be lain on the ground and then be formally taken up by the father – a ceremony virtually identical to that of the Celts and Teutons. This was known as *tollere*, "picking up the child" – confirmation that it would not be exposed, and the ceremony was presided over by the good spirit *Levana*, 'the Uplifter'.

The wider kindred known as the *gens* comprised those who claimed descent from a common ancestor – from one of the

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patres or elders who had belonged to the original *senatus*. While there is no evidence of any regular family council, it is generally agreed that the rule of the *pater familias* within the household was usually benign, being tempered by the close common loyalties and more especially by the philosophy which made the family sacred, and the conviction that his every action was known to the spirits of his ancestors and to the guiding *genius* of the family. One of the worst moral offences known to early Roman society was for the *pater familias* to fail in his trusteeship of the family property, involving as this did his responsibilities to the living, the dead and those still to be born, this moral crime being known as *patrimonium profundere*. The concept of *manus* and *potestas* implied dual obligations; the head of the household being responsible to ensure that the members did not commit any injury or harm to others and also to ensure their probation and well-being under all circumstances.

Clan and "Phratry"

The *gentes* had an organization about which we unfortunately know little. Like the Greek phratry, it passed resolutions which were binding upon the *pater familias* who comprised its membership and upon all under their *manus* or *potestas*. Its duties were familistic; being responsible for arranging guardianship for young children left without a father, serving as curators for those who were mentally unbalanced, and even the care of spend-thrifts, for although the *pater familias* was in historic times regarded as the sole owner of property, the *gens* was interested in the well-being of all agnatic, consanguineal members, and no *pater familias* was to be encouraged to waste the family assets which he held only in trust! The property, too, of a member of the *gens* (a 'gentile') who died without heirs returned to the members of the *gens*, and this would be administered by the *gens* for the common good of its members. Finally, the *gens* was held together by the common ritual or *sacra gentilicia* – only those who had the right to take part in these rituals being entitled to share in the common property.

These *gentes* appear to correspond quite closely to the Greek phratry, and as we have already seen were comprised of smaller subgroups, or *stirpes*, who were identified by the *cognomen*.

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These latter would correspond in function to the Greek 'genos', and may be regarded as lineages. Above the *gens* we find only the archaic *curia* and *tribus*. Originally the *curia* must have been equivalent to the Greek phratry, but this became vestigial at an early date, and in view of the division of the *gens* into several lineages, and the similarity of its functions to that of the Greek brotherhood or 'phratria', one is led to ask whether the Roman *gens* should not properly be regarded as a phratry.

The study of Roman family relations gave us two other terms commonly employed, that of *agnati*, those related by consanguineal or adoptive ties through male relatives, and *cognati*, those traced council of relatives, the *judicium domesticum*, which latter body seems to have trophied quite early in the republican era.

"Emancipation" and "Manumission"

It is hard to estimate the degree of social mobility permitted during the regal period, but with the abolition of the monarchy Roman history immediately enters into the well known contest between patricians and plebeians. The right of the *pater familias* to emancipate free-born members of his *familia* (including clients) or to manumit slaves, although possibly little used during the trustee period of Roman history, was undoubtedly ancient and indicates the absence of a strict caste hierarchy comparable to India where marked physical differences doubtless contributed towards a reduction of social mobility. We hear little of the manumission of slaves in the earlier history of Rome, but in later ages, when the traditional Patrician family system had lost its hold, many Roman slaves were manumitted either as a reward for good service, or else because a freeborn Roman citizen wished to marry a female slave and desired that his children by her should be freeborn. Such was the emphasis upon caste exclusiveness that in early Rome the offspring of slaves always took 'the worse hand' and were in turn born into slavery in sharp contrast to the customs of latter-day Rome, when the freeing of slaves for the purpose of marriage was not uncommon.

The *cliens* or clients, those who 'listened' or 'obeyed', were freemen, included in the *familiae* of the original *gentes* who settled the hills alongside the Tiber (or attached to *gens* instead of families), who tended the herds and bore arms when

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necessary. They shared the clan name and were given a peculiam, including livestock, but had no right to marry above their rank. From these clients arose the original *plebs*, while the *gentiles* formed the *populus*.

The early expansion of Rome which absorbed the neighboring Latin peoples led to a policy whereby those who lived nearby were required to abandon their own city strongholds, and remove to Rome, partly for the greater security of Rome but also to prevent insurrections. Those who already possessed a gentile organization were permitted to become a part of the *populus*, while their clients were absorbed into the body of the plebs. These clients, being free, were able to take on the work of independent craftsmen, artisans and tradesmen, and with the increase in their numbers and prosperity came the tensions which characterized republican Rome.

Distinct from the clients, but of equal significance, were the *hospites*, or aliens. In the absence of any international law between different tribes or states, and in the absence of any legal protection within a state, except where the individual was under the protection of someone who was *sui generis*, a recognized *pater familias* or householder, none could reside safely within the limits of a foreign state. In early Rome, therefore, even though the blood feud was dead, we find a memory of a more primitive age in the *hospites*. In historic times, *hospites* mainly received legal protection, medical care and general assistance, but the antiquity of the concept is obvious and in earlier times physical protection would also have been implied.

Decline of the Ancient Traditions

As the centuries passed by, the ancient Roman or Indo-European traditions steadily waned, and the patrician oligarchy, weakened by constant military service and by economic competition from the more prosperous plebeians, were obliged to abandon much of their power and social exclusiveness. New families, often of non-Roman origin, ultimately found their way into the patrician ranks, and the old pagan religious and social ideals — for the pagan religion was heavily rooted in ancestor worship and provided the root of the ancient social order — similarly weakened in the face of competition from alien universalistic religions and philosophies. Some of the older

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patrician families attempted to preserve the ancient religion and original social order long after Rome itself became a totally cosmopolitan city; but eventually even the winged statue of Victory was finally removed from the Senate, which it had adorned from the earliest times, under the orders of a Christian Emperor, and the last vestiges of the Rome of the early Republican period finally diminished to the point that they disappear from our sight.

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BOOK REVIEWS

SOCIOBIOLOGY: SENSE OR NONSENSE?
By Michael Ruse. University of Guelph. Ontario, Canada, 1979. 231 pages.

The possible biological bases of human social behaviour have been a matter of acrimonious dispute ever since Charles Darwin published his pioneering and controversial works, *On the Origin of Species* and the *Descent of Man*. For every biologist who claims that Man does what he does because of his animal heredity, there has been an answering critic who claims that humans entirely transcend their animal origins and that all significant causes of inclination and behavior are in some sense learned behavior. However, the past three or four years have seen the nature/nurture dispute intensify and explode with more bitterness and force than at any other time since Bishop Wilberforce of Oxford and Darwin's 'bulldog', Thomas Henry Huxley, clashed over the monkey question. The basic error in these disputes probably arises from the assumption that genetics and environment each operate to the exclusion of the other. This is not the case, since genetic forces set the potential limits of behavior, and environment operates within these limits.

The immediate cause of the latest flare-up about human social behavior and its relationship to our innate biology, was the publication in 1975 of Edward O. Wilson's magisterial *Sociobiology: The New Synthesis*. Sensing that the previous decade had seen a quantum jump in studies (both empirical and theoretical) on animal social behavior. Wilson, a member of the Harvard biology department and one of the world's leading insect biologists, explored these movements and gathered all his findings into one voluminous and integrated compendium, thereby single handedly creating a new paradigm.

Beginning with the lowest forms of animal life, Wilson

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traced sociality and its causes from insects, birds, mammals, right up to the primates. He concluded his book by relating our own species, *Homo Sapiens*, to its genes, suggesting that the basic pattern of much of our behavior is biologically programmed.

As might be expected in the current political and intellectual climate, Wilson's speculations did not go unchallenged for long. Shortly after his book appeared, he was pilloried in the letter columns of the *New York Review of Books* by a group of radical scientists, who called themselves "Science for the People Sociobiology Study Group." His critics likened him to reactionary political thinkers and declared sociobiology a racist science because it could be used to demonstrate that some races are inferior to others. They protested that "social progress" could be radically altered by this new science, and appeared to imply that scholars such as Wilson should therefore be silenced.

After three years of war, the battles still continue. On the one side are the sociobiologists, such as Wilson, Robert Trivers, Richard Alexander, Richard Dawkins, while on the other, the critics include Richard Lewontin, Richard Levins, and Marshall Sahlins.

Sociobiology: Sense or Nonsense? is a full-length work devoted to sociobiology and its criticisms. It has three main aims. Firstly, it is an attempt to introduce the reader to the major claims made by the sociobiologists, both in the animal and human worlds, with special emphasis on the explanations offered for the various forms of altruism. Secondly, to review the criticisms made by the opponents. Finally, the current status of human sociobiology is assessed, highlighting the possible effects on the social sciences and its possible implications for the development of a sound theory of human action.

It is the opinion of this reviewer that the best assessment of scientific theories are made by scientists rather than by philosophers such as Ruse. However, Ruse's book is of considerable value and Edward O. Wilson has himself stated that it : "is the best written to date about the whole scope of sociobiology, including a consideration of its basic biological principles, the philosophical basis of its varied extensions, and the conflicts that have grown up around its human applications."

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EVOLUTION AND ECOLOGY:
ESSAYS ON SOCIAL TRANSFORMATION

By Julian H. Steward, edited by Jane C. Steward and Robert E. Murphy. Published by University of Illinois Press, Urbana, Chicago, and London, 1978, 406 pages.

This work surveys with the anthropological theories of Professor Julian Steward, formerly of the University of Illinois, who is renowned for his contribution to the concept of cultural evolution. It includes papers written by Steward on various aspects of cultural evolution, on change in South America, determinism in primitive society, and cultural evolution in Puerto Rico, as well as discussing the historical approach to archeology. It may be regarded as a fitting tribute to a scholar who corrected the formerly excessive influence on functionalism in anthropological theory.

MANAGING THE COMMONS

Edited by Garrett Hardin and John Baden. W. H. Freeman & Company, San Francisco, 1978.

Garrett Hardin's essay "The Tragedy of the Commons" is a modern classic in environmental literature. The "commons" are the world's resources, so often portrayed as being the common property of mankind, though recklessly exploited to serve the purposes of the present generation, without regard to posterity.

The editors have put together an anthology of readings which focus on the destructive exploitation of the present age and then suggest ways in which we might ensure that these are best utilized for the benefit of both the present and also the future generations.

Articles published include "A Primer for the Management of Common Pool Resources"; "Population, Ethnicity and Public Goods"; "What Marx Missed"; "Killing the Goose"; and "Living on a Lifeboat."

Those who know Garrett Hardin, know him as an ecologist who is concerned with the reality of man's position as a part of the universe in which he lives, and not as some kind of privileged creature possessing complete "dominion" over that universe. As Hardin has indicated before, in what he calls "Gregg's Law", these reources are under severe com-

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petitive pressure for exploitation due to the pressure of world population, which is growing at far from even rates around the world. "I suggest," said Alan Gregg in 1955, " as a way of looking at the population problem, that there are some interesting analogies between the growth of the human population of the world and the increase of cells observable in neoplasms... Cancerous growths demand food; but, so far as I know, they have never been cured by getting it."

CONTEMPORARY CHANGES IN TRADITIONAL SOCIETIES
Edited by Julian H. Steward, III. Mexican and Peruvian Communities, by Charles J. Erasmus, Solomon Muller and Louis C. Farod. University of Illinois Press, Urbana, Chicago and London, 302 pages.

This is the third volume of the series, and deals with change in South America, particularly change that affects the Indian populations. However in the third part dealing with the Chancay Valley, Peru, the author (Louis C. Faron, of the Department of Anthropology, State University of New York) points to the large scale, recent immigration of Chinese and Japanese. The Chinese he calls "assiduous miscegenators," and says that where Peruvians have oriental features it is generally due to recent admixture with Chinese immigrants. The Japanese behave differently, bringing their womenfolk with them, and forming largely endogamous communities.

EIGHT URBAN MUSICAL CULTURES:
TRADITION AND CHANGE
Edited by Bruno Nettl. Published by University of Illinois Press, Urbana, Chicago, London, 1978, 320 pages.

This is an important work discussing musical tradition and fashion in diverse urban centers around the world. In India, music remains organized largely along traditional caste lines, and endogamy was found to be the rule. The modern Chinese young American towns have little use for traditional Chinese music and gain their music from the cinema and other media. We learn that "the populous of Veracruz (Mexico) is regularly exposed to nonlocal music and musical culture," but by contrast, the Creoles of Freetown still preserve a Negro musical tradition which

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can trace its roots in Africa.

The component papers are authored by Bruno Nettl, Stephen Blum, David Coplan, Kathleen L'Armand and Adrian L'Armand, Daniel M. Neuman, Ronald Riddle, David K. Stigberg, and Naomi Wore.

THE PAWNEE GHOST DANCE AND HAND GAME: GHOST DANCE REVIVAL AND ETHNIC IDENTITY

By Alexander Lesser. University of Wisconsin Press, Madison, Wisconsin, 1978, 340 pages.

First published in 1933, this work has been republished because of the persistent interest in the Ghost Dance as a ritual intended to preserve traditions which were nearing extinction. Its reassertion of Pawnee values was an expression of the Pawnee desire to preserve ethnic identity.

The tribal sense of being Pawnees, of having language, history, and traditions from a remote past, remains today. The number of Pawnees on the tribal role exceeds 2,000 at the present time, and these are held together by common economic interests under the leadership of a council of chiefs.

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ELECTRONIC REPRODUCTION PROHIBITED

INDEX TO VOLUME NINETEEN

Brown, Raymond Lamont
The Ainu: A Vanishing Race 64
Cappieri, Mario
The Etruscans 329
Cattell, Raymond B.
Ethics and the Social Sciences: The "Beyondist" Solution 298
Edwards, W.R., and K. Gibson
An Ethnohistory of the Amerindians in Guyana 85
Engelstad, David Stephen
The Relation between Family Size, Ordinal Position and IQ in a Sample of South Mississippi School Children 193
Hasan, K.A.
Medical Anthropology: An Overview 277
Irsigler, F.J.
Cause and Effect in the Evolution of the Hominid Brain 181
Jamieson, J.W.
Mammalian Societies and the Emergence of the Family System 119
The Links between Fire Worship and Ancestor Worship: A Speculative Essay 239
Landsberg, Marge E.
The Fair Moors of Oceania 249
Nicoli, Rene M. and Jean F. Barbou
The Ethnology and Genealogy of Corsica as reflected in Official Registers 149
O Cathasaigh, Donal
The Cult of Brigid: A Study in Pagan-Christian Syncretism in Ireland 311
Pearson, Roger
Ecology, Adaptation and Speciation 103
Understanding Human Social Evolution: The Controversy between Kinship and Social Materialism 225
Reiter, Henry H. and Michael Simon
Neuroticism as a Function of the Degree of Environmental Freedom 215
Richards, John W.
Early Indo-Aryan Social Structure 103
Family and Social Structure in Early Rome 349
Siddamma, T.
Obesity and Social Class 157
Swan, Donald A. and Garnett Hawkins
The Dermatoglyphics of South Mississippi Anglo-Saxon School Children (Part III) 7
Tarrant, Desmond
Intelligence and Creativity 4
Weiss, Volkmar
The Use of Heritabilities in Personnel Selection 221
Weyl, Sylvia Castleton and Nathaniel Weyl
Jewish and Chinese Leadership in America 49

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PAUL T. BAKER, Editor

A collection of eleven articles discussing such topics as the responses of high altitude populations to cold and other stress, their adaptive fitness, food, nutrition, work capacity, and a genetic description of high altitude peoples. *International Biological Programme 14* $39.50

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A MODERN ECOLOGICAL-EVOLUTIONARY APPROACH

INTRODUCTION TO ANTHROPOLOGY

By Roger Pearson

This general introductory text surveys all the major areas of anthropological inquiry: paleontology, physical anthropology, primatology, archeology, ethnology, and general cultural anthropology.

The story of man is revealed as the product first of biological then of social and cultural responses to ecological influences from the earliest beginnings of life through the growth of civilization, up to the interconnected urban world of today.

Biological and cultural evolution are shown to be essentially adaptive in nature, emphasizing the relationship between culture and methods of subsistence. This relationship is especially well illustrated in the third part of the text where disparate cultures with different methods of subsistence serve as concrete examples of actual societies at various stages of cultural evolution—ranging from simple hunting and gathering people like the Yahgan of Tierra del Fuego in Chapter 23, to the complex industrial societies of Chapter 32.

This elaborately produced two-color book contains more than 200 photographs as well as 64 maps and charts, all of which clarify and enhance the text.

CONTENTS:

Introduction

Part I
The Evolutionary Background

1. In the Beginning...
2. Ecology and Adaptation
3. The Fish That Crawled
4. Mammals Supplant Reptiles
5. Into the Trees
6. Mammalian Social Life
7. In Search of the Missing Link
8. An African Eden?
9. The Man Who Walked Erect
10. The Coming of Homo sapiens
11. From Calipers to Biochemical Markers: Physical Anthropology Comes of Age
12. Classifying the Living Hominids

Part II
Ethnological Analysis

13. Culture and Society
14. Marriage and Kinship
15. Band, Tribe, and Nation
16. Custom and Law
17. Economic Organization
18. Social Stratification
19. Magic and Taboo
20. Propitiating the Gods
21. The Esthetic Adventure

Part III
Ecological Adaptation

22. Studying Cultural Change
23. Marginal Survivors from the Paleolithic
24. Horticulturalists: Warlike and Peaceful
25. Fishing Societies
26. Simple Pastoralists
27. Advanced Pastoralists
28. Centralized Chieftainships
29. The Rise of Urban Civilization
30. Civilizations of the New World
31. Peasant Societies
32. Industrial Societies
33. Postscript: The Evidence of Language

Glossary

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